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CAUSES OF FOREIGN DIRECT INVESTMENT, FINANCIAL DEVELOPMENT, REAL EXCHANGE RATE AND THEIR CONSEQUENCES ON ECONOMIC GROWTH IN CAMEROON

A Thesis submitted to the Faculty of Economics and Management of the University of Dschang, and publicly defended for the Degree of Doctor of Philosophy (PhD) in Economics

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Dschang, 2014

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UDS/ECOLE DOCTORALE/UFD SCIENCES ECONOMIQUES ET DE GESTION

Monsieur ACHAMOH Victalice NGIMANANG
a soutenu Publiquement une Thèse de Doctorat
Ph.D en Sciences ECONOMIQUES

Thème : «Causes and economic Growth consequences of foreign direct investment, financial development and real exchange rate in Cameroon»

Devant le Jury ci-après

Président :
Prof. AVOM Désiré
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Mention : Très Honorable.

Observations :
Travail accepté, le candidat ayant suivi les canevas scientifiques d'une thèse. Le titre doit être reformulé pour cadrer avec le contenu de la thèse.

DEDICATION

This Thesis is dedicated to my parents, wife and children

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ABSTRACT

This thesis assesses the implications of foreign direct investment (FDI), financial development and real exchange rate (RER) for economic growth in Cameroon using Cameroon's annual time series data published from 1977 to 2010. Specifically, it develops a conceptual framework that reviews and reconciles the four concepts, investigates the determinants of each of the concepts, and assesses their linkages with growth. To address these objectives, Engle-Granger, Autoregressive Distributive Lag (ARDL) bound testing and Johansen cointegration techniques are employed. Results of Unit roots tests show that all the series possessed unit roots at level form or first difference. Market size variable and Macroeconomic instability factor significantly have positive effect and negative effect respectively on foreign direct investment inflows to Cameroon. Financial liberalization and gross investment are significant correlates of financial development with both registering positive effects in the short run. The effect of trade policy and that of public expenditure on the evolution of the real exchange rate are both negative (appreciating RER) and highly significant in the long-run. Results of ARDL model and vector error correction model (VECM) reveal that the RER has a negatively significant effect on economic growth, while FDI and Financial Development relate positively to economic growth. These findings have implications for stimulating economic growth by increasing efficiency of the financial sector in allocating credit to the private sector, adopting restrictive trade policies and reducing public expenditure on non-tradable goods to prevent RER appreciation.

RESUME

Cette thèse évalue les implications des investissements directs étrangers (IDE), le développement financier et le taux d'échange réel (RER) pour la croissance économique au Cameroun. Pour le faire, nous nous sommes appuyés sur les données de temps annuel du Cameroun publié de 1977 à 2010. Spécifiquement, il développe une structure conceptuelle qu'examine et réconcilie les quatre concepts, enquêter sur les déterminants de chacun des concepts, et répartit leurs rapport avec la croissance économique. Pour dresser ces objectifs, les techniques de cointégration de Johansen-Juselius, Engle-Granger et le test de limites de l'Autorégressive Décalage Distributif (ARDD) sont employés. Les résultats des tests d'unité des racines montrent que toutes les séries ont possédé l'unité en racine en forme de niveau ou à la premier différence. La variable de la dimension du marché et le facteur d'instabilité macroéconomique ont respectivement des effets positifs significatifs. La libéralisation financière et l'investissement brut sont des corollaires significatifs du développement financier avec les deux ayant des effets positifs à court terme. L'effet de la politique commerciale et des dépenses publiques sur l'évolution du taux d'échange réel sont négatifs (appréciation de taux d'échange réel) et très significatif à long terme. Les résultats du modèle d'ARDD et du modèle de la correction de l'erreur du vecteur (MCEV) révèlent que le taux d'échange réel a un effet négativement significatif sur la croissance économique, alors que l'IDE et le développement financier enregistrent des effets positifs. Ces conclusions ont des implications pour stimuler la croissance économique en augmentant l'efficacité du secteur financier dans l'attribution du crédit au secteur privé, en adoptant des politiques de commerce restrictives et les dépenses publiques réductrices sur les marchandises non-commercialisables pour prévenir l'appréciation du taux d'échange réel.

EXTENDED ABSTRACT

This thesis assesses the implications of foreign direct investment, financial development and real exchange rate for economic growth in Cameroon using Cameroon's annual time series data published by the World Bank, IMF and INS from 1977 to 2010. Specifically, this thesis develops a conceptual framework that reconciles the above mentioned concepts, investigates the determinants of the concepts, and assesses its links with growth. To address these objectives, Engle-Granger, Autoregressive Distributed Lag (ARDL) bound testing and Johansen cointegration techniques are employed. Four researchable hypotheses are derived from the objectives to guide us. In each case, unit root test is verified for all the series concerned to avoid cases of spurious regressions.

The first hypothesis on the effects of market size and economic stability on foreign direct investment is investigated by Engle-Granger cointegration test and Bounds testing approaches to the analysis of level relationships. The second hypothesis is based on the effects of financial liberalization and gross investment on financial development. It is verified using residual based cointegration technique. The Thesis equally borrows from the fundamental approach developed in Ghura and Grennes (1994), Ebaldawi (1994) and Ebaldawi and Soto (1998) to investigate the effect of trade policy (trade openness) and public expenditure on the real exchange rate (RER) variations.

Johansen cointegration test and Granger-pairwise-causality test are employed to verify the fourth hypothesis. Specifically, the Vector Error Correction Model (VECM) specification of the vector autoregressive (VAR) model developed in Sekman (2007) and ARDL bounds testing model developed in Pesaran, Shin and Smith (2001) are used to examine the implications of foreign direct investment (FDI), financial development (FD) and the real exchange rate (RER) for economic growth.

Essentially, we are interested in establishing the empirical relationships between foreign direct investment, financial development, the real exchange rate and economic growth in Cameroon. This is done by developing a conceptual framework that connects the different concepts, identifying and investigating linkages between the concepts and the paramount determinants

sorted from literature and suggesting policy recommendations.

In this perspective, our thesis is organized in seven chapters: Chapter one is the general introduction while chapter two focuses on a conceptual framework which emphasizes the sub and overall linkages between different concepts. Chapters three to six are empirical in nature with each chapter starting with an introduction, review of literature, methodology, results and conclusion, in that order. Chapter three is based on the relationship between market size, macroeconomic stability and foreign direct investment. Chapter four investigates the determinants of Financial Development while chapter five examines the effects of trade policy and government spending on the Real Exchange Rate in Cameroon. Chapter six with the same format addresses the implications of foreign direct investment, financial development and Real exchange rate for growth. Chapter seven presents the general conclusion and recommendations.

We started by establishing theoretical linkages between the concepts. On the linkages between FDI and economic growth, following the complementary hypothesis, FDI is helpful to LDCs in enhancing their capital base, technology and access to export markets. The inflow of capital and reinvestment of profits increases the total savings of the country. Furthermore, the neoclassical theory holds that FDI replaces the inferior production technology in developing countries by a superior one from advanced industrialized countries through the transfer of technology, managerial and marketing skills, although dependency theory has a contrary view. The general consensus is that, FDI contributes to economic growth through capital accumulation, technology transfer, filling of saving-investment gap with non-debt financial inflow, relaxing of foreign exchange constraints and by increasing potential to generate employment.

On the other hand, growth of real GDP increases incentive for foreign direct investment inflow into the country especially market seeking foreign capital. Rapid growing economy enhances growth in demand which provides greater profitability opportunity for foreign investment inflow. Foreign direct investment is thus regarded as a positive correlate of GDP growth in Cameroon.

We further examined the linkages between financial development and economic growth. Although financial development is captured in literature differently, in this thesis, based on the relative merits over other measures, it is captured by the ratio of credit to private sector on GDP. Even though, the role of finance on growth was neglected in literature for long, it is today

perceived as the engine of growth. Financial systems contribute to economic growth through savings mobilization, managerial monitoring, resource allocation, risk management, trade facilitation among others. These in turn enhance capital accumulation, technological innovation, lower transaction cost, reduce magnitude of cyclical fluctuation, and provide low cost information on investment opportunities leading to economic growth. As an economy embraces growth, there is greater need for financial services as the different sectors demand credit for obvious reasons. This implies that the two concepts are interrelated.

Two main theories on the linkage between exchange rate and economic growth are examined. The Balassa-Samuelson hypothesis opines that, countries with relatively high productivity in its non-tradable goods sector are likely to witness depreciation of their real exchange rate. This will encourage investment, improve on current account balance, strengthen export competitiveness and enhance economic growth. However, a country that exhibits relatively high productivity growth instead in its tradables sector over time is likely to have a secular appreciation of its real exchange rate which may deters GDP growth. The Houthakker-Magee-Krugman 45° Rule labeled HMK holds that a relatively fast growing country obviously witnesses a depreciating exchange rate to maintain its current account balance. Relatively slow growing country should have an appreciating exchange rate, unless the relative growth rate between the home country and the rest of the world is equal to the ratio of relative income elasticities of demand.

Real exchange rate (RER) which is a function of many fundamental variables affects economic growth depending on the nature of distortion in its equilibrium. Defining RER as the ratio of price of tradable to prices of non-tradable as in this thesis, RER appreciates when the price of non-tradable exceeds the price of tradable goods (fall in the ratio representing the RER). This reduces productivity of investment in tradable goods, exacerbates investment and deteriorates the current account, thereby affecting economic growth negatively, meanwhile, RER depreciation has the reverse effect.

In more details we build a framework of FDI based on the Macroeconomic budget constraint of the Ramsey model. A similar framework on aggregate production function is constructed for financial development as in Rebelo (1991). The inter-temporal model of the determinants of the real exchange rate of Rodríguez (1989) and Edwards (1989) is developed to examine the effects of Trade Policy and Government spending on the real exchange rate. This inter-temporal model

according to Elbadawi and Soto, (1998) enables us to separate the short- and long-run determinants of the real exchange rate and provides us a simple framework for computing its equilibrium level.

Regarding the first research hypothesis on the effects of market size and macroeconomic stability on FDI in Cameroon, the empirical findings showed that market size and macroeconomic instability significantly have positive and negative effects respectively on FDI inflows to Cameroon. Bidirectional causality is noticed between market size and foreign direct investment. In addition, our results support the view that gross investment is a positive and significant correlate of financial development. The effect of financial Liberalization is equally significant but instead negative in the long run. Short run causality test reports one-way causality from financial liberalisation to financial development.

The empirical results equally validated the third hypothesis of the study on the effect of government spending and trade policy on the real exchange rate. The results indicate that the effect of trade policy (trade openness) and that of public expenditure on the real exchange rate (RER) variations are both negative and very significant in the long-run. Public spending causes the RER to appreciate by raising demand and hence the relative price of non tradables and liberal trade policy do so by reducing export taxes and import tariff which instead lowers the relative price of tradable compared to those of non-tradable. In either case, the relative prices of tradable are less than those of non-tradable goods leading to the real exchange rate appreciation.

Econometric results of Autoregressive Distributive Lag (ARDL) bounds test and Vector Error Correction Model (VECM) reveal that, the RER has a positively significant effect on economic growth and the effects of FDI and Financial Development are also positive though the role of FDI is not very significant. The positive linkage between the RER and economic growth simply indicates that economic growth can only fostered when the relative prices of tradables exceed those of non-tradable goods (RER depreciation) than otherwise. Results of Granger causality test report one-way causality from GDP growth to financial development. Another unidirectional causality is noticed from the RER to growth of real GDP. These results imply that changes in GDP can provoke a significant change in the proportion of credit directed to the private sector of the economy but the reverse is not true.

The results of this thesis suggest that great ambitious programs of higher economic growth and prosperity in Cameroon could be attained by designing policies to encourage gross investment so as to increase the efficiency of the financial sector in allocating credit to the private sector leading to financial development. The ongoing financial liberalization process should only be fostered in the country in the short run if the main intention is to speed up the mobilisation of financial resources to the private sector since longrun outcome of the reform is instead negative. Trade openness policy and public expenditure should be restricted in order to prevent overvaluation of the RER as a means of promoting GDP growth. Host country's market size could as well be expanded while maintaining general economic stability alongside with improvement on infrastructure and quality of labour force to render Cameroon a more investment-friendly environment capable of attracting reasonable FDI inflow to the economy.

RESUME EXTENDU

Cette thèse évalue les implications des investissements directs étrangers, le développement financier et le taux d'échange réel pour la croissance économique au Cameroun à l'aide des données de la série du temps annuel du Cameroun publié par la banque mondiale, FMI et INS de 1977 à 2010. Spécifiquement, cette thèse développe une structure conceptuelle qui réconcilie les conceptes susmentionnés, enquête sur les déterminants des conceptes, et répartit ses liens avec la croissance économique. Pour atteindre ces objectifs, les techniques de cointégration de Johansen-Juselius, Engle-Granger et le test de limites de l'Autorégressive Décalage Distributif (ARDD) sont employés. Quatre hypothèses de la recherche sont dérivées des objectifs pour nous guider. Dans chaque cas, le test d'unité de racine est vérifié pour toutes les séries concernées pour éviter les cas de régressions fallacieuses.

La première hypothèse sur les effets de la dimension du marché et la stabilité économique sur les investissements directs étrangers s'est appuyée sur les tests de cointégration et sur les approches du test de limites sur l'analyse de relations de niveau. La deuxième hypothèse est basée sur les effets de la libéralisation financière et des investissements bruts sur le développement financier. Il est vérifié en utilisant la technique de la cointégration basée sur le résidu. La thèse emprunte également de l'approche fondamentale développée dans Ghura et Grennes (1994), Ebaldawi (1994) et Ebaldawi et Soto (1998) pour enquêter sur l'effet de politique du commerce (ouverture commerciale) et des dépenses publiques sur les variations du taux d'échange réel.

Le test de cointégration de Johannsen et la causalité de Granger sont employés pour vérifier la quatrième hypothèse. Spécifiquement, le Modèle de la Correction de l'Erreur du Vecteur (MCEV), la spécification de l'autoregression du vecteur (VAR), le modèle développé dans Sekman (2007) et le test de limites de l'ARDD développé dans Pesaran, Shin and Smith (2001) sont utilisés pour examiner les implications des investissements directs étrangers (IDE), le développement financier (FD) et le taux d'échange réel (RER) pour la croissance économique.

Essentiellement, nous sommes intéressés à l'établissement des rapports empiriques entre les investissements directs étrangers, le développement financier, le taux d'échange réel et la croissance économique au Cameroun. Cela est fait en développant une structure conceptuelle qui connecte les conceptes différents, en identifiant et en enquêtant sur les liaisons entre les

conceptes et les déterminants importants recueillis de la littérature et suggérer des recommandations.

Dans cette perspective, notre thèse est divisée en sept chapitres: Le chapitre un est l'introduction générale, le chapitre deux traite d'une structure conceptuelle qui accentue les sous liaisons et liaisons majeur entre les différents conceptes. Les chapitres trois à six sont de nature empirique avec chacun des chapitres commençant par une introduction, une revue de la littérature, de la méthodologie, résultats et conclusions. Le chapitre trois est basé sur le rapport entre la dimension du marché, la stabilité macroéconomique et les investissements directs étrangers. Le chapitre quatre enquête sur les déterminants du développement financier pendant que le chapitre cinq examine les effets de politique du commerce et les dépenses des gouvernements sur le taux d'échange réel au Cameroun. Chapitre six, avec la même forme, concerne les implications des investissements directs étrangers, le développement financier et le taux d'échange réel pour la croissance. Le chapitre sept présentes la conclusion générale et les recommandations.

Nous avons commencé en établissant les rapports théoriques entre les conceptes. Sur les rapports entre l'IDE et la croissance économique, selon les hypothèses complémentaires, l'IDE est utile aux pays en voie de développement pour rehausser la base des leurs capitaux, leur technologie et leur accès aux marchés des exportations. L'entrée des capitaux et le réinvestissement des bénéfices augmentent les épargnes totales du pays. En outre, la théorie néo-classique tient que l'IDE remplace la technologie de production inférieure dans les pays en voie de développement par une technologie supérieure des pays industrialisés avancés à travers le transfert de technologie, les talents du management et du marketing bien que la théorie de dépendance ait un point de vue différent. Le consensus général est que, l'IDE contribuent à la croissance économique à travers l'accumulation des capitaux, au transfert de la technologie, au comble des écarts d'épargne des investissements avec l'entrée financière sans dettes, le relâchement des contraintes d'échange étrangères et en augmentant le potentiel de création d'emplois.

D'autre part, la croissance du PIB réel augmente la motivation pour les investissements directs étrangers dans le pays, surtout les capitaux étrangers dans la recherche des marchés. Une économie croissante rapide stimule la croissance de la demande qui offre une plus grande opportunité de profitabilité pour les investissements étrangers directs. Les investissements directs étrangers sont ainsi vus comme les corollaires positifs de la croissance du PIB au Cameroun.

Par ailleurs, nous avons examiné les rapports entre le développement financier et la croissance économique. Bien que le développement financier soit vu différemment en littérature dans cette thèse, suivant les avantages relatifs sur les autres mesures, le développement financier est traduit par la proportion de crédit accordé au secteur prive sur le PIB. Bien que le rôle de finance sur la croissance a était négligé dans la littérature pour long temps, il est perçu aujourd'hui comme le moteur de croissance. Les systèmes financiers contribuent à la croissance économique à travers la mobilisation des épargnes, le contrôle managérial, l'allocation des ressources, la gestion du risque, la facilitation du commerce parmi tant d'autres. Ceux-ci relancent l'accumulation des capitaux, l'innovation technologique, baissent le coût des transactions, réduisent la magnitude de variation cyclique, et fournissent des informations à vil prix sur les opportunités d'investissement qui conduisent à la croissance économique. Comme une économie embrasse la croissance, il y a un plus grand besoin des services financiers puisque les différents secteurs demandent du crédit pour des raisons évidentes. Cela implique que les deux conceptes sont interdépendants.

Deux principales théories sur le rapport entre le taux d'échange et la croissance économique sont examinées. Selon l'hypothèse de Balassa-Samuelson, les pays qui ont une productivité élevée relative dans le secteur des marchandises non - commercialisables sont susceptibles de subir une dépréciation de leur taux d'échange réel. Cela encouragera les investissements, améliorera l'équilibre du compte courant sur la balance du compte courant, renforcera la compétitivité de l'exportation et renforcera la croissance économique. Cependant, un pays qui dispose d'une productivité élevée relative plutôt sur son secteur commercialisable à la longue est susceptible d'avoir une appréciation séculaire sur son taux d'échange réel qui pourrait décourager la croissance du PIB. Le Houthakker-Magee-Krugman (HMK) 45° Règle soutient qu'un pays relativement rapide dans la croissance assit évidemment à un taux d'échange décroissant pour maintenir l'équilibre de son compte courant. Un pays au taux de croissance relativement lent devrait avoir un taux d'échange appréciable, à moins que le taux de croissance relative entre le pays et le reste du monde soit égal à la proportion des élasticités du revenu de la demande relative.

Le taux d'échange réel (RER), lequel est une fonction de beaucoup de variables fondamentales, affecte la croissance économique selon la nature de distorsion dans son équilibre. Définissant RER comme la proportion de prix du commercialisable par rapport aux prix du non-

commercialisable comme dans cette thèse, le RER apprécie quand le prix du non-commercialisable la dépasse le prix des marchandises commercialisables (chute dans la proportion qui représente le RER). Ceci réduit la productivité des investissements dans les marchandises commercialisables, exacerbe les investissements et abîme le compte courant. De cette façon la croissance économique touchante négativement, cependant la dépréciation de RER à l'effet inverse.

Dans plus de détails, nous concevons un cadre d'IDE basé sur la contrainte du budget macroéconomique du modèle Ramsey. Un cadre similaire sur la fonction de la production globale est conçu pour le développement financier comme dans Rebelo (1991). Le modèle inter-temporel des déterminants du taux d'échange réel de Rodríguez (1989) et Edwards (1989) est développé pour examiner les effets de la politique du Commerce et des dépenses du gouvernement sur le taux d'échange. Le modèle inter-temporel d'après Elbadawi et Soto, (1998) nous permet de séparer les déterminants à court et à long termes du taux d'échange réel et nous fournit une structure simple pour cerner son niveau d'équilibre.

Concernant la première hypothèse de recherche sur les effets de la dimension du marché et la stabilité macroéconomique sur le l'IDE au Cameroun, les conclusions empiriques ont montré que la dimension du marché et l'instabilité macroéconomique ont des effets positifs et négatifs considérables. La causalité bidirectionnelle est remarquée entre la dimension du marché et des investissements directs étrangers. En plus, nos résultats supportent le point de vue que les investissements brutes sont des corollaires positifs et significatifs du développement financier. Les effets de la Libéralisation financière sont également considérables mais plutôt négatifs à long terme. Le test de causalité à cout terme montre la causalité unidirectionnelle de la libéralisation financière au développement financier.

Les résultats empiriques ont également validé la troisième hypothèse de l'étude sur l'effet des dépenses publiques et la politique commerciale sur le taux d'échange réel. Les résultats indiquent que l'effet de la politique du commerce (ouverture commerciale) et celui des dépenses publiques sur les variations du taux d'échange réel sont à la fois négatifs et très significatifs à long terme. Les dépenses publiques poussent le taux d'échange à apprécier en augmentant la demande et ainsi les prix relatifs des non-commercialisables et la politique commerciale libérale le fait ainsi en réduisant les taxes sur les exportations et le tarif des importations qui réduit plutôt le prix

relatif des commercialisables. Dans l'un ou l'autre des cas, les prix relatifs des commercialisables sont dessous des marchandises non-commercialisables conduisant ainsi à appréciation du taux d'échange réel.

Le résultat économétrique du test de limites de l'Autorégressive Décalage Distributif (ARDD) et du modèle de la Correction de l'Erreur du Vecteur (MCEV) révèle que, le taux d'échange réel a un effet positivement considérable sur la croissance économique et les effets d'IDE et du développement financier sont aussi positifs bien que le rôle d'IDE ne soit pas très significatifs. Le rapport positive entre le taux d'échange réel et la croissance économique indique simplement que la croissance économique ne peut être encouragé que si les prix relatifs des commercialisables dépassent ceux des marchandises non-commercialisables (dépréciation de RER) qu'autrement. Les résultats du test de causalité de Granger montrent la causalité à sens unique de la croissance des PIB au développement financier. Une autre causalité unidirectionnelle est remarquée du taux d'échange réel à croissance des PIB réel. Ces résultats impliquent que les changements de PIB peuvent provoquer un changement significatif dans la proportion du crédit en direction du secteur privé de l'économie, mais l'inverse n'est pas vrai.

Les résultats de cette thèse proposent que les programmes des grandes ambitions de la croissance économique élevée et de prospérité au Cameroun puissent être atteints en définissant des politiques pour encourager les investissements brutes pour ainsi accroitre l'efficacité du secteur financier en accordant des crédits au secteur privé, ce qui aboutit au développement financier. Le processus de la libéralisation financière en cours devrait être encouragé dans le pays seulement à court terme si l'intention principale est d'accélérer la mobilisation des ressources financières au secteur privé étant donné que le résultat de la réforme est plutôt négatif à long terme. La politique d'ouverture commerciale et des dépenses du publiques devraient être restrictive pour empêcher la surévaluation du taux d'échange réel comme un moyen de promouvoir la croissance des PIB. La dimension du marché local pourrait aussi être élargie tout en maintiennent la stabilité macroéconomique en même temps que l'amélioration des infrastructures et de la qualité de la main-d'œuvre pour rendre le Cameroun un environnement viable et amical capable d'attirer des investissements directs raisonnables dans le pays.

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b) Narayan (2004) reformulated critical values for the bounds f- statistics approach to cointegration (based on 30- 80 observations)

LIST OF ACRONYMS

ADF	Augmented Dickey Fuller
ARDL	Autoregressive Distributed Lag
CEMAC:	Central Africa Economic and Monetary Community
COBAC:	Banking Commission of Central Africa
ECM	Error Correction Mechanism or Model
EXR	Changes in real exchange rate
FD	Financial Development
FDI	Foreign Direct Investment
FCFA	*Franc de la Coopération Financière en Afrique*
FZ	Franc Zone
GDP	Gross Domestic Product
GESP	Growth and Employment Strategic Paper
GR	Growth Rate of Real GDP
IMF	International Monetary Fund
MNCs	Multinational Corporations
PP	Philips Perron
PPP	Purchasing Power Parity
RER	Real Exchange Rate
RERMIS	Real Exchange Rate Misalignment
VAR	Vector Autoregressive Model
VECM	Vector Error Correction Model

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Chapter One:

GENERAL INTRODUCTION

1.1 Background of the study

Cameroon like most developing countries is endowed with numerous natural resources, which if harnessed could serve as engine of growth and development in the economy. However, the performance of almost all sectors of the economy has been dismal with adverse repercussions for economic and human development. The country is characterized as relatively low-income, but households generally have a high propensity to consume, low level of savings, corruption and rent seeking. In general, Cameroon faces low capital formation and low productivity which have implications for poverty and low life expectancy. The classical economists suggested that to break this vicious circle theory of poverty, foreign direct investment (FDI) must be encouraged to complement domestic investment so as to provide such developing countries the means to achieve the desired growth and development.

Foreign direct investment (FDI) is now widely perceived as an important source for expediting industrial development of developing countries. Most of the developing countries have changed their attitude towards FDI because it is believed that FDI can contribute to the development efforts of a country through reducing the savings-investment gap. The benefits of FDI are not restricted to improved use of its resources, but also stem from the introduction of new processes to the domestic market, learning-by-doing, networking, training of the labour force, and other spillover effects and externalities. Most of the less developed countries ((LDCs) including Cameroon have adopted proactive policies to attract FDI. Even though such policies can be very effective in attracting FDI, the local conditions can limit the potential benefits generated by FDI.

Most of the developing countries rely primarily on FDI as a source of external finance because FDI stimulates economic growth more than other sources of capital inflows. In particularly, FDI is supposed to be less volatile to offer financial resources, transfer of modern technology, market access and managerial knowhow. Financial resources are largely used to expand productive capacity by increasing fixed investment in the host countries, while transfer of technology and managerial know-how improves productive capacity (Khan, 2007). Furthermore, FDI brings

various networks such as sales and procurement networks to the host countries, which can be used to expand their business opportunities. FDI also increases competitive pressures to the local firms that result in an improvement in technical and allocative efficiency in the host country.

To reap some of the aforementioned benefits of FDI, the government of Cameroon has since independence encouraged capital inflows. This was done by the provision of the necessary incentives to boost FDI inflows, such as stipulated national laws as well as acceptance to binding international arbitration Acts (Njimanted, 2009). At the national level, for instance, the government has introduced or ratified a number of legal instruments to encourage these foreign capital inflows such as an attractive investment code of 1990, amended in 1994; Patent Right Acts of 1st March 1977, amended February 1999; Trademarks Act called Bangui Agreement of March 1997, amended in February 1999; Industrial Designs called Bangui Agreement IV of March 1997, amended in February 1999, law No. 2000/011 on copyright and related rights of December 2000, and, The New Investment Law No 2013/004 of 18th April 2013 which lay down a wide-range of private investment incentives in Cameroon (http.www.wip.org).[1]

On further strategies to encourage foreign direct investment inflow, the preoccupation of researchers shifts to studies on quantifying its determining factors. It is generally perceived that an economy with large market size attracts more foreign direct investment. The market size hypothesis holds that a large market is necessary for the efficient use of resources and exploitation of economies of scale. Considering equally that one of the classic symptoms of loss of fiscal or monetary control is unbridled inflation, stable macroeconomic environment characterized with low rate of inflation and prudent fiscal activity signals to investors about the commitment and credibility of the government (Nunnenkamp and Spatz, 2002).

Foreign investors prefer to invest in more stable economies, which reflect a lesser degree of uncertainty. High or rising rate of inflation deters inflow of foreign direct investment. These variables shall be examined alongside with other correlates of foreign direct investment found in

[1]At the international level Cameroon has equally ratified the Paris Convention for the protection of industrial property of 1883, recently revised at Stockholm in 1967 and 1994. Convention on the recognition and enforcement of foreign Arbitral awards of 7th June 1959, Convention to the settlement of investment Disputes between states and nationals of other states of October 14th, 1966, convention establishing the investment Guarantee Agency of April 12th, 1988. Bilateral investment treaties for the protection and promotion of investments sign in Italy 1996. (See www.beac.int for more).

the literature such as real exchange rate, growth rate of GDP, trade openness, quality of human factor and level of financial development.

Inflow of foreign direct investment, no matter the cause has very remarkable implication on the real exchange rate (RER) of a country. Foreign capital inflows irrespective of their form have become an increasingly important source of external financing for developing countries. It increases physical and human capital for recipient households (Yang, 2008) and exert pressure on the real exchange rate which is analogous to "Dutch disease" dynamics[2].

Developing countries receive aggregate inflows from migrants working abroad, and this increase in financial capital puts upward pressure on recipient countries' local currency. This effect stems from the observation that additional income in the form of remittances is mostly consumed, particularly on non-tradable goods and services. If such funds were otherwise channelled through investment, the real exchange rate appreciation would attenuate or even disappear (Acosta, Lartey, and Mandelman 2007; Lopez, Molina, and Bussolo 2007). However, Acosta *et al.* (2009) find that financial capital inflows of all forms tend to put upward pressure on the real exchange rate.

Real exchange rate is the main determinant of international competitiveness of a country. It is a critical variable for a developing country like Cameroon to monitor and manage properly through fiscal, income and other policies if they are to avoid distorting relative production incentives between tradable and non-tradable goods. Indeed, RER gives an expression of the total macroeconomic environment and depends on many internal and external fundamental variables which policy makers may use to achieve many growth enhancing objectives. Determinants of RER, therefore, provide alternative avenues to monitor and manage the RER, so as to prevent distortions, through other macroeconomic variables. This is especially true of a country like Cameroon whose membership of the Franc Zone does not authorise her to unilaterally influence the real exchange rate through adjustments in the nominal exchange rate.

[2]The term "*Dutch disease*" often used in literature, generally refers to any upward pressure put on the real exchange rate resulting from financial capital inflows such as foreign aids, foreign investment or migrant remittances (see for instance, Lartey et al. 2008; Acosta et al. 2009).

Cameroon is a mixed economy with government intervening in almost all the sectors. In addition, the country like other developing countries is greatly involved in international trade where she exports basically primary products and imports capital goods and other manufactured commodities. Government expenditure and trade policy of Cameroon and CEMAC region at large certainly have an effect on the real exchange rate of FCFA -the currency of the Franc Zone (FZ), Cameroon inclusive.

Government spending and trade openness variables have been identified in most economic literature as fundamental determinants of real exchange rate. Public expenditure increases aggregate demand in the economy. Increase in government consumption of non-tradable goods or borrowing on domestic and international markets induces an increase in demand which raise the price of non-tradable goods and tends to appreciate the real exchange rate.

The degree of openness of the economy considers the relation of an economy with the rest of the world and could be used to capture how trade restrictive policies influence the real exchange rate through their impact on the price of non-tradables. Tightening of trade restrictions can cause a real exchange rate appreciation (Edwards 1989). Contrarily, trade liberalization characterised by a reduction or elimination of export taxes and import tariffs, allows importers to buy more foreign exchange for the same level of total expenditure leading to real exchange rate depreciation. Other fundamental correlates of real exchange rate include Terms of trade, technical progress, capital flows, and domestic credit ratio (Edwards, 1989; Williamson, 1994; and Ghura and Grennes, 1994; Elbadawi and Soto, 1997; Baye and Khan, 2002).

Importantly, domestic credit to the economy is amongst those real exchange rate (RER) management variables which could be manipulated internally to enhance the global competitiveness of the economy. The financial sector pulls savings from different economic operators, safeguards and gives sizable credit to the economy for various uses. This domestic credit could increase the demand for tradable goods used for investment purposes and the prices of these goods would increase relative to those of non-tradables leading to a depreciation of the real exchange rate. Excess domestic credit used mainly on non-tradable sectors would likely raise their relative prices and cause the real exchange rate to appreciate.

Schumpeter (1911) contends that, financial intermediaries provide essential services that are catalytic to innovation and growth. Thus, a well-developed financial system is able to channel financial resources to the most productive use. However, an alternative explanation by Robinson (1952) argues that finance has no causal effect on growth. Robinson contends that, instead, it is financial development that follows economic growth as a result of higher demand for services. According to this hypothesis, when an economy grows, more financial institutions, financial products and services emerge in the markets in response to higher demand for services.

The literature in this research is generally more in support of the hypothesis advanced by Schumpeter (1911), later conceptualized by McKinnon (1973) and Shaw (1973), and further formalized by Fry (1988) and Pagano (1993). According to McKinnon and Shaw, government restrictions on the operation of the financial system such as interest rate ceiling, directed credit policies, and high reserve requirements may hinder financial deepening. Consequently, this may affect the quality and quantity of investments, with a subsequent adverse outcome on economic growth. It follows that financial liberalisation and gross investment rate equally promote financial development. Financial services are highly demanded when the level of investment of any form increases in the economy. The rate of FDI and domestic investment of a country (gross investment) greatly determines the level of financial development.

Another important issue to raise here is the role of financial development on real exchange rate, foreign direct investment and economic growth. The test of whether financial sector development can prevent appreciation of the real exchange rate is controversial in many studies. Acosta *et al.* (2009) show that well-developed financial sectors can more effectively channel funds into investment opportunities. The effect of financial development on RER appreciation is weaker in countries with deeper and more sophisticated financial markets, which seem to retain trade competitiveness. In general, financial markets facilitate the gathering of information and lower the transaction costs of interactions between savers in the economy and borrowers. Growth enhancing channels of financial sector may include amongst other: savings mobilization, resource allocation, risk management, managerial monitoring and trade facilitation

Recent theoretical and empirical literature suggests that foreign direct investment (FDI) exerted positive impact on economic growth through the process of technological diffusion. In addition, the development of the domestic financial system and the stability of real exchange rate of the

host country is an important pre-condition for FDI to have a positive impact on economic growth. A well-developed domestic financial sector enhances efficient allocation of financial resources and improves the absorptive capacity of a country with respect to FDI inflows. Indeed, a more developed financial system positively contributes to the process of technological diffusion associated with foreign direct investment (Khan, 2007).

The trend in economic growth in Cameroon has experienced many changes over time. There are periods of high economic growth and that of considerable economic decline and as it shall be disclosed in the course of the thesis, this trend determines or is determined by Foreign Direct Investment, Financial Development and Real Exchange Rate.

The trend in the evolution of net foreign direct investment was insignificant in the 1970s. It increased steadily from 1977 to over 400 billion FCFA in 1983. With the advent of economic crisis by mid 1980s and subsequent financial crisis, the trend fell sharply and register a negative value in 1986 and again in 1989/90 before it rose rapidly to over 600 billion FCFA in 2003. On the other hand, real exchange rate in Cameroon which experienced an upward trend for over ten years from 1970, had been fallen since 1980 to barely 49.4 perecnt in 1993 just a year before the devaluation of FCFA.

Within the BEAC zone, Cameroon like other member countries cannot make any unilateral changes in its nominal exchange rate. It can only carry out internal adjustments such as fiscal policy or trade policy measures. With this exchange rate policy constraint, RER in Cameroon tends to misalign in many periods, experiencing both periods of RER overvaluation and undervaluation which has great implications for economic growth. According to Baye and Khan (2002), the degree of overvaluation got to its peak in 1993 and slightly became undervalued in 1994 after a 50 percent devaluation of FCFA.

On the part of financial development, credit to the private sector as a proportion of GDP, which experienced steady increase in the 1970s and 1980s, with few exceptions, later fell drastically in the early 1990s. Private credit as an indicator of financial development evolved greatly from the average of 20 percent in 1970s to 25.7 percent in 1980s later fell to 10.4 percent in 1993 and to barely 6.7 percent in 1998 before improving slowly to 8.89 percent in 2007. The drastic fall in the

indicators of financial development (private credit) were the symptoms of financial crisis experienced in Cameroon in the 1990s and again by 2007.

The worldwide economic crises witnessed in Cameroon from the late 80s to mid-90s and the subsequent structural adjustment program put in place had greatly affected the level of economic activities, growth performance of the country likewise foreign direct investment, financial development and real exchange rate. The upsurge of this crisis adversely affected conditions of exploiting the credit establishments and led to the liquidation and acquisition of many banks[3] between 1989 and 1992. The banking commission for central Africa (COBAC) was established in 1990 to strengthen control and regulation within the financial system.

The harsh economic atmosphere did not favour foreign direct investment inflows, instead, investment fled the country as net FDI flows were negative for many years (Ajayi, 2000). It equally led to noticeable drain of CFA Franc notes from the Franc Zone; chronic liquidity shortage in the Franc Zone ; suspension in the repurchase of the CFA notes exported out of Franc Zone on August 2nd, 1993 followed by a 50 percent devaluation of the CFA Franc on January 12th, 1994 (Baye and Khan, 2002). All these led to a drastic fall in annual growth rate as the economy witnessed a decade of long recession which manifested itself in a 4 percent decline on average in real GDP.

Barely some two decades later, the world economy is recently mired in another crisis. It is said to be the most severe financial and economic crisis since the Great Depression, which continues to threaten the ability of many countries to confront issues such as poverty, hunger and disease (Bruno, 2010). The crisis originated in the major financial centers in the developed countries caused by the financial and economic policies of such countries as the United States (Bernanke, 2010). The force of impact on the developing and transition countries became apparent only gradually. As the crisis deepened, the impact on developing countries became rapidly worse, particularly in terms of rising unemployment and a widening external financing gap.

The crisis was transmitted primarily by trade and financial flows forcing millions back into poverty. Attainment of the Millennium Development Goals is seriously jeopardised in many

[3]Merchant bank, National development bank and "Banque Camerounaise" were liquidated (Tabi and Zongang, 2006)

countries. Many developing countries did not and do not have the resources to stimulate the economy and protect their socially disadvantaged populations to the same extent as the industrialised countries (Bruno, 2010). Being one of gravest crises as described by IMF (2009) affecting developing countries mainly through trade links and financial flows, is expected to greatly affect macroeconomic variables such as FDI, RER and financial development than the previous crises in a developing country like Cameroon.

To verify the impact foreign direct investment, financial development and real exchange rate on economic growth as a mean of accomplishing the main objective of the study, we limit our analysis only to the case of Cameroon and also to the macroeconomic aspects of the policy impact evaluation. It does not extend to explore the microeconomic aspects that would have helped to better understand the interrelationship among the variables. This is due mainly to the non-availability of data and also to the fact that all these aspects cannot be covered in a single work. Non-availability of data for some macroeconomic variables of the study limits the length of empirical analysis. Empirical study therefore covers a shorter period than intended and this varies with different models depending on the length of feasible data[4]. The data used are collected solely from secondary sources for variables of interest.

Having gone through the background of the study, we shall proceed with statement of the problem; deduce the research questions, objectives and hypotheses.

1.2 Statement of the problem

The classical economists are of the view that to break the vicious circle theory of poverty in developing countries, foreign direct investment (FDI) must be encouraged to complement domestic investment so as to provide these countries with their desired growth and development. As a result, there has been a marked increase in the proportion of foreign direct investment (FDI) in total capital flows in Cameroon since the mid-1990s. This period coincided with the period of return to growth (1994–2004) when economic activities were revamping after eight years of economic decline. Real GDP which had declined by a yearly average of 4 percent to -2.4 percent in 1994 became positive and rose steadily from 1994/95. This steady growth of real GDP from 1995, according to Amin (2002) reflects the joint effects of the 1994 devaluation of the CFA

[4]Example, the estimation of Real Exchange Rate (RER) model could only be possible from 1977.

Franc, substantial improvement in the tradable goods sector, steady increase in total credits to the private sector, large influx of foreign direct investment into the country and subsequent trade, fiscal, and macroeconomic reforms.

Net foreign direct investment in the country according to Njimanted (2009) rose sharply from 9.42 billion FCFA in 1970 to 59.90 billion FCFA in 1980. Although it recorded a negative value in the mid-1990s, the value rose again to over 400 billion FCFA in 2002. The trend of net FDI has been fluctuating from 128 billion in 2003 to barely 9 billion in 2006 and to 188 billion FCFA in 2008. The nominal exchange rate of FCFA with respect to French Francs was affected a 50 percent devaluation, which translated into a sharp depreciation of real exchange rate from 208.92 percent in 1980 to barely 52 percent in 1996 (Baye and Khan, 2002).

In addition, total domestic credits in Cameroon rose from 884.56 billion (32.3% of real GDP) in 1994 to 1157 billion FCFA (17% of RGDP) in 2004 and began to fall to barely 579billion in 2007 before improving gradually in the subsequent years to 801 billion FCFA in 2010 (NIS, 2011).Total bank credits and financial deepening ratio to GDP (M2/GDP) followed a similar trend. These were the consequences of recent crisis witnessed in 2007. There was a deep recession of world economic activities (1.9% in 2009 against 3.3% in 2007).

The financial crisis affected almost all the sectors of the Cameroon economy and led to a fall in the growth rate of real GDP from 3.3 percent in 2007 to 2.9 percent in 2008 and further to 1.9 percent in 2009 (INS, 2011). According to IMF (2012) the rate of real GDP growth improved to 4.6 percent in 2012 although the rate was still far below the 5.5 percent expected according to Growth and Employment Strategy Paper as the rate to be realized on average between 2010 and 2020 to permit the country achieved its great ambition of emerging by 2035.

Foreign direct investment, real exchange rate and financial development are therefore three macroeconomic variables whose interrelations and implications for economic growth deserve special attention. Real exchange rate is an expression of the total macroeconomic environment and thus provides a milieu for influencing international competitiveness of the country. In Cameroon like its other counterparts of the Franc Zone, the power to manipulate the real exchange rate through nominal exchange rate is limited. This is simply because a member of Franc Zone (FZ)

like Cameroon does not have the opportunity to unilaterally change the nominal exchange rate as a policy option without the full knowledge of other members and the permission of France.

Examination of the main internal and external determinants of real exchange rate is helpful in providing options for influencing global competitiveness of a country. Financial development is one of the internal variables which in the course of channelling financial resources from operators with surplus funds to needy sectors influence the real exchange rate. FDI inflows which measure the inflows of investment to acquire a lasting management interest in an enterprise equally have a great impact on economic growth and other macroeconomic variables of the host country. A well-developed financial sector enhances efficient allocation of financial resources and improves the absorptive capacity of the country with respect to FDI thereby contributing positively to the process of technological diffusion thereby accelerating the rate of growth.

Many studies in the literature focused on the determinants of foreign direct investment, financial development or real exchange rate. Other studies investigate the effects of these variables on economic growth with controversial results. Although some studies revealed that FDI alone plays an ambiguous role in contributing to economic growth, Carkovic and Levine (2000) and Alfaro (2002) found that the presence of active and well developed financial markets may alter the results significantly. So far, very few studies have carried out an in-depth empirical examination of the transmission mechanisms amongst foreign direct investment, financial development, real exchange rate and economic growth. This challenge is what forms part of the motivation for this research.

The present study does not only take its cue from the recent emphasis on the role of finance or FDI on growth as in most literature but shall employ appropriate econometric techniques to first specify three models respectively for the determinants of FDI, financial development and RER while emphasizing on the potential effects of key variables in the various cases where necessary. In the final analysis, the three variables are pulled together and their implications for economic growth are investigated using Bound testing approach (ARDL model) and vector error correction model (VECM) based on recent time series data for Cameroon.

1.3 Research Questions

Main research question:

From the foregoing statement of the problem, a key question arises:

- What are the causes and wellbeing consequences of foreign direct investment, financial development and real exchange rate for economic growth in Cameroon?

The specific research questions are:

- What are the effects of market size and macroeconomic stability on FDI in Cameroon?
- What are the main determinants of financial development in Cameroon?
- What is the role of government spending and trade policy on real exchange rate in Cameroon?
- What are the effects of foreign direct investment, financial development and real exchange rate on economic growth in Cameroon?

1.4 Objectives of the Study

Main objective:

The main objective of the study is to investigate the implications of foreign direct investment, financial development and real exchange rate for economic growth in Cameroon.

The specific objectives are:

- To assess the effects of market size and macroeconomic stability on FDI in Cameroon.
- To investigate determining factors of financial development in Cameroon.
- To examine the influence of government spending and trade policy on real exchange rate.
- To explore the effects of foreign direct investment, financial development and real exchange rate on economic growth in Cameroon.

1.5 The Research Hypotheses

On the basis of the foregoing research questions and research objectives, the following research hypotheses can be derived, other things being equal:

- ⇨ Market size and macroeconomic stability are positively correlated with FDI in Cameroon
- ⇨ Investment rate and financial liberalisation have positive impacts on the level of financial development.
- ⇨ Government spending and trade policy (trade openness) are significantly correlated with real exchange rate in Cameroon
- ⇨ Economic growth in Cameroon is significantly influenced by foreign direct investment, financial development and real exchange rate.

1.6 Scientific and policy contribution of the thesis

1.6.1 Scientific Contribution

To better stimulate public debate and awareness in the outcome of policy changes that affect economic growth performance, this thesis contribute scientifically in the following ways:

First, this thesis uses recent econometric techniques of ARDL modeling to identify the impact of market size and macroeconomic stability on foreign direct investment in Cameroon. We identify and correct econometric misspecifications identified in previous studies (Chenery and Strout, 1966; Singer, 1994; Nair- Reichert and Weinhold, 2001; Khan and Baumol, 2006; Njimanted, 2009 and many others). Precisely, bound testing procedure is employed accompanied by a series of diagnosis tests which help to detect and correct model misspecifications.

Second, this work also provides empirical evidence by investigating the impact of trade openness and government spending on real exchange rate in Cameroon using recent time series data. It further looks at factors relating financial development in both shortrun and longrun. This will help to scientifically show the determining factors of financial development captured by private credit in Cameroon.

Third, this study also investigates the link between and among foreign direct investment, financial development, real exchange rate, and economic growth. It therefore helps to enrich our

understanding of the FDI-growth, finance-growth, RER- growth and FDI-Finance-RER-growth relationships. We attempt to verify if the same factors that explain foreign direct investment, financial development or real exchange rate also account for economic growth.

Finally, for scientific cautioning, this thesis helps to empirically clarify doubts of many people on the actual implications of certain macroeconomic variables on growth. It has empirically addressed the controversial problems on the implication(s) of foreign direct investment, financial development and real exchange rate for real GDP growth.

The above scientific contributions will help improve understanding of the FDI-FD-RER and growth linkage in Cameroon. Similarly, the expected scientific contribution of this study is largely empirical. Unlike the concept of FDI which is a bit common in economic literature, studies on financial development (FD) and real exchange rate (RER) are still new in Cameroon especially when it comes to bound testing methodology. Pulling these variables together and investigating their empirical effects on growth performance in Cameroon shall greatly sharpen our minds on the issue especially as Cameroon membership to Franc Zone restricts it from altering it nominal exchange rate (NER) as a policy instrument.

1.6.2 Policy Relevance

Considering the contribution of foreign direct investment, financial development and real exchange rate on economic growth of a country, it is imperative to have a clear empirical view on the interrelationships amongst the variables. Clarifying the linkages amongst these variables is crucial in the formulation and implementation of rational and sound economic policies. Assessing the compositional effect of these variables on growth is going to contribute in designing growth–oriented programmes especially for the vision of emerging by 2035 to be attained. This therefore provides an insight to policy makers and the government of Cameroon on the issue.

The study will provide policy makers with relevant information on how to formulate measures to stimulate growth in Cameroon by targeting foreign direct investment, financial development and real exchange rate. Quantifying the interrelationships among these variables empirically make the study an important tool for forecast. The study is equally important to economic planners, since sustainable economic growth calls for increased domestic resource mobilisation and stable real

exchange rate. In addition, the study shall contribute immensely to the existing knowledge and literature in the respective domains.

1.7 Brief outline of methodology

The method employed to empirically analyse the data set is discussed in details in the subsequent chapters. However, this section briefly looks on dataset and the model type employed in the study.

The dataset used in this study comprises annual information for Cameroon spanning the period 1977–2010. The empirical study uses basically secondary data obtained or constructed from four main sources. These include the statistics of Africa development indicators of the World Bank (CD-ROM, 2010); the World Development Indicators CD-ROM (2011); the Penn World Tables version 6.2; the International Financial Statistics CD-ROM (2010). In cases where the CD-ROM does not provide the necessary data, especially from 2008 –2010, we relied on statistics from the National Institute of Statistics (NIS) in Yaoundé for completion. All the variables are first tested for unit roots by the Augmented Dickey Fuller (ADF) test and Phillips-Perron (PP) test to eliminate any possibility of spurious regression and to verify whether they can be represented more appropriately as difference or trend stationarity processes.

The theoretical foundation of this study is based essentially on four models. To better attain the stated objective of the study, we shall pay more attention to the potential effects of some major variables in each case. This is done by examining the effects of some important variables on the dependent variables which are Foreign Direct Investment (FDI), Financial Development (FD) and Real Exchange Rate (RER) respectively in chapter three, four and five. In the respective regressions, we verify if the error term possesses a unit root at level form or Wald F-statistics exceeds the upper bound critical values of Pesaran *et al.* (2001), so as to conclude for cointegration of variables and proceed with the estimation of the corresponding shortrun dynamic models (ECM).

Autoregressive Distributed Lag bounds testing approach is employed to verify the existence of longrun relationship between economic growth and its determinants. The impact of FDI, financial development and RER on economic growth is examined by estimating the Vector Error

Correction Model (Sekmen, 2007) and Autoregressive Distributive Lag specification of the VAR model (Harvie and Pahlavani, 2006; Jarita, 2006; Long and Samreth, 2008; Noula, 2012). The ARDL model is based on bound testing meanwhile the VECM displays the normalised cointegrating vector and the Error Correction Models involving $\Delta RGDP_t$, ΔFDI_t, ΔFD_t and ΔRER_t as dependent variables in that order. The coefficient attached to each variable in the cointegrating regression is the adjusted parameter with associated t-values, F-statistics and coefficient of determination (R^2).

Finally, a pairwise Granger causality test is conducted to verify the direction of short term causality among the four variables, whether at a given level of significant the hypothesis that one of the variables does not Granger cause the other is rejected or not. The analysis is facilitated with the used of Microsoft Excel, Eviews, and STATA Econometric softwares.

1.8 Organisation of the thesis

The study is structured in seven chapters. Chapter one is the general introduction which systematically addressed the problem statement, the research questions, objectives and hypotheses, and a brief outline of methodology and data used. The second chapter focuses on the conceptual framework of the study which emphasizes the sub and overall linkages between and amongst Foreign Direct Investment, Financial Development, Real Exchange Rate and Economic Growth.

Chapter three is based on the relationship between market size, macroeconomic stability and Foreign Direct Investment. Chapter four investigates the determinants of Financial Development, while chapter five examines the effects of trade policy and government spending on Real Exchange Rate in Cameroon. Chapter six with the same format addresses the implications of FDI, financial development and Real exchange rate for real GDP growth.

Finally, chapter seven draws the study to a logical conclusion by recapping the main issues investigated, highlights the main results and conclusions around the stated hypotheses and finally formulates recommendations and indicates the way forward for further research.

Chapter Two

FOREIGN DIRECT INVESTMENT, FINANCIAL DEVELOPMENT, REAL EXCHANGE RATE AND ECONOMIC GROWTH: A CONCEPTUAL FRAMEWORK

2.1 Introduction

Theoretical and empirical evidences have been provided on the unresolved issues of the implications of Foreign Direct Investment (FDI) Financial Development (FD) and or Real Exchange Rate (RER) for economic growth in many countries. Although the theoretical positions on the subject are quite diverse, the conventional wisdom is that FDI enhances economic growth especially when the financial sector is well developed and appreciation of the real exchange rate (RER) is prevented. Empirical research, however, does not conclusively support the conventional wisdom. A few studies report positive and significant relations between FDI, as well as financial development or RER and economic growth while several others find significantly negative or no relationship between positive movement on these variables and growth in output.

Extensive literature explored on these concepts clearly indicates that theoretical and empirical evidences are at best mixed. Establishing relationship of this nature for the case of Cameroon is therefore very crucial. It is generally observed that relationship between foreign direct investment, financial development, real exchange rate and economic growth varies slightly with the choice of the indicators used in capturing the different variables concerned. Varied proxies have been used in literature to capture the various variables. As such, we shall briefly examine the different indicators for the various variables in this chapter and make a choice of what to be used in the study based on their relative merits over others.

The objective of this chapter is to examine the theoretical and historical evolution of Foreign Direct Investment, Financial Development, Real Exchange Rate, and economic growth and then establish possible linkages among the four variables. To accomplish this task, the rest of the chapter is arranged as follows; Sections 2, 3, 4 and 5 focus respectively on the concepts of Foreign Direct Investment, Financial Development, Real Exchange Rate, and economic growth. Section 6 summarises the possible linkages between FDI, FD, RER and economic growth while Section 7 concludes the chapter with derivation of various hypotheses of the study.

2.2 The concept of Foreign Direct Investment

Theories of FDI play an important role in shaping legal attitudes both nationally and internationally. In an attempt to capture the true insight of the place of FDI in Cameroon's economic environment, a critical examination of some of the theories associated with FDI is very crucial. A number of the theories are provided in economic literature. The theories have evolved at both the micro and macro levels as we are going to discuss their evolution in the subsequent sections.

2.2.1 Definition and measurement of foreign direct investment

Foreign direct investment (FDI) refers to the inflows of investment to acquire a lasting management interest in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments of a country. FDI is captured by net foreign direct investment as a ratio of Gross Domestic Product. This series shows net FDI as a proportion of GDP, that is, net FDI in the reporting economy from foreign sources less net FDI by the reporting economy to the rest of the world divided by gross domestic product of the country.

Alternative measure of FDI used in some studies is merely by taking the log of FDI inflow in the recipient country. This measure is criticized for not considering the effect foreign capital outflows. In cases where capital outflow exceeds inflows, the log of FDI's measure does not reflect the actual situation. Similarly, the variable is captured in some studies by foreign capital inflow expressed as a percentage of Gross Domestic Product.

2.2.2 Theoretical and historical evolution of the concept of foreign direct investment

The concept of FDI is not new in economic literature. The first theoretical studies of FDI were perceived since two centuries ago in the works of classical economists such as Adam Smith, Stuart Mill and Torrens. Amongst the first authors to address the issue in greater detail, Ohlin (1933) noted that direct foreign investment is motivated mainly by the possibility of high profitability in growing markets, along with the possibility of financing these investments at relatively low rates of interest in the host country. Other determinants were the necessity to overcome trade barriers and to secure sources of raw materials.

The complementary hypothesis of FDI put forth by Presbich in the 1930s pointed out that FDI would be of help to LDCs as a convenient package of enhancing their capital base, technology, access to export markets and management skills to foster their industrial development. These benefits attached to FDI support the governments of LDCs in their quest for economic empowerment through the demand for foreign capital investment. It is also worth pointing out here that policies to attract and maintain foreign direct investment through various fiscal incentives have been adopted in a number of developing countries including Cameroon. The view of this hypothesis is further substantiated with the neoclassical economic theory of FDI.

In the 1960s, another hypothesis of direct investment being determined by specific assets that compensate the initial disadvantage faced by foreign firms in relation to local firms was developed known as the HKC tradition named after Hymer (1960), Kindleberger (1969) and Caves (1971). Around the same decade, neoclassical economic theory of FDI came up. The theory holds that FDI contributes positively to the economic development of the host country and increases the level of social wellbeing (Bergten *et al.,* 1978). The reason behind this argument is that the foreign investors are usually bringing capital into the host country, thereby influencing the quality and quantity of capital formation in the host country. The inflow of capital and reinvestment of profits increases the total savings of the country. Government revenue increases via tax and other payments (Seid, 2002). The infusion of foreign capital generates employment, influences income distribution and generates foreign exchange, thereby reducing balance of payments pressures of the host country (Reuber, 1973; Bergten *et al.,* 1978 and Sornarajah, 1994).

The other argument favouring the neoclassical theory is that FDI replaces the inferior production technology in developing countries by a superior one from advanced industrialised countries through the transfer of technology, managerial and marketing skills, market information, organisational experience, and the training of workers (Kojima, 1978). Multinational corporations (MNCs) through their foreign affiliation can serve as primary channel for the transfer of technology from developed to developing countries. The proponents of neoclassical theory further argue that FDI raises competition in an industry which is likely to improve productivity (Kojima, 1978). This increase in competition can lead to efficient utilization of capital, reallocation of resources to more productive activities, and removal of poor management

practices. FDI can also widen the market for host producers by linking the industry of host country more closely to the world markets, which leads to even greater competition and opportunity for technology transfer.

Furthermore, infrastructural facilities would be built and upgraded by foreign investors. The facilities would be for the general benefit of the economy (Sornarajah, 1994). The greater flow of direct investment brings substantial benefits to bear on the world economy and on the economies of the developing countries in particular, in terms of improving the long-term efficiency of the host country through greater competition, transfer of capital, technology and managerial skills and enhancement of market access and in terms of the expansion of international trade.

In contrary with some of the pioneer theories of FDI, Dependency theory which could be traced back to the work of Karl Marx, Paul Baran, Andre Gunder Frank and Samir Amin argues that foreign direct investment from developed countries is harmful to the long-term economic growth of developing nations. It asserts that First World nations became wealthy by extracting labour and other resources from the Third World nations. It further argues that developing countries are inadequately compensated for their natural resources and are thereby sentenced to conditions of continuing poverty. This kind of capitalism based on the global division of labour causes distortion, hinders growth, and increases income inequality in developing countries. Third World nations could develop independently without depending on foreign capital and goods.

The influence of the dependency theory peaked in the 1970s. Many authors advocated that dependency theory provided some useful qualitative methods to restrict foreign capital. Various countries adopted dependency theory perspectives in the 1970s. In the same line of reasoning, the substitution hypothesis postulated by Haavelmo (1963), maintains that, FDI rather than acting as a complement to domestic savings instead operates to discourage it, hence enhance wide gaps and economic inequalities between the rich North and the poor South.

Furthermore, some writers from the dependency school of thought see especially multinational corporations, which are a component of FDI as a new form of dependency replacing colonialism centered on peripheral relationships. To them, multinational companies are merely profit-oriented outfits without concern for the welfare of the people. Still from the substitutional hypothesis view point, foreign direct investment should not be relied upon as means of promoting national growth

and economic development because its crowds out domestic savings by allowing domestic residents to increase their consumption of goods and services at the expense of further investment.

As a consequent, policies to discourage foreign capital inflow have been implemented in some countries. East Asian countries for instance adopted import substitution strategy and demonstrated a hostile attitude toward foreign investment. In fact, in other countries, there has been open hostility to foreign investment and all kinds of restrictions have been put in place to discourage portfolio investment, private direct investment, foreign debt, and even foreign aid. To them, all sort of foreign investment including foreign aid is neither a necessary nor a sufficient condition for economic growth and development or poverty alleviation parameter (Jhingan, 1995).

Two important theories were also advocated in the late 1960s specifying the stages of product development and economic growth that FDI occurs. The Product Cycle Theory propounded by Raymond and Vernon (1966) and Hirsch (1967) is used to analyse the relationship between product life cycle and possible FDI flows. FDI can be seen mostly in the phases of maturity and decline. At the early life of a product, innovations tend to be centered in a richer industrialized country and later extend to other countries. Vernon, further argued that once a product has evolved in a standard form and competing products have been developed, the firm might decide to expand its production frontiers overseas. The resulting expansion tends to capture lower cost locations and new markets in form of exports.

This theory sees investment innovation in three phases; the innovative stage where firms are located in the most advanced industrial countries, the maturing or process development stage where manufacturing process keeps improving, and, the mature phase where the installation of plant and machineries for production in LDCs begins. The product cycle theory therefore provides a useful point of departure for the causes of international investment in the form of foreign direct investment (FDI).

Gravity approach to FDI instead considered Political stability as the key determinant of FDI inflow and shows that the closer two countries are geographically, economically and or culturally, the higher will be the FDI flows between these countries. In the same vein, The

Japanese theory of FDI developed in the 1970s analysed the relationship of FDI's competitiveness and economic development by identifying three main phases of development when the wave of FDI inflow and outflow from a country occurs.

In the first phase of economic growth, the country is underdeveloped and is targeted by foreign companies wanting to use its potential advantages (especially low labour costs), as such, outgoing FDI is very insignificant. At the second phase of economic growth, new FDI is drawn by the growing internal markets and by the growing standards of living. At this stage, outgoing FDI is motivated by the rising labour costs. At the third phase of economic growth, the competitiveness of the country is based on innovation. The incoming and outgoing FDI are motivated by market factors and technological factors

From the standard neoclassical model "Industrialization theory on FDI and spillover effects" developed in the late 1970s, Capital is seen to flow from countries where returns are low to those where they are higher. The theory maintains that FDI is more than a process by which financial assets are exchanged internationally but the transfer of a "package" in which capital, management, and new technology are combined. Kindleberger (1984) iterates that when a firm undertakes FDI in a foreign country, it must possess some special ownership advantages over domestic competitors. Such advantages include marketing and management skills, brand names, patent-protected superior technology, cheaper source of financing, preferential access to markets and economies of scale (Haque, 1992). Unlike portfolio investment, FDI entails a cross-border transfer of a variety of resources including, process and product technology, managerial skills, marketing and distribution know how, and human capital.

Findlay (1978) constructed a model based on the Gerschenkron's hypothesis (1962), which states that the greater the relative disparity in development levels between a backward country and an industrialized country, the faster the catch up rate. These arguments have led to the hypothesis that technological progress in a backward region increases with the opening up to FDI (Fan, 2003). Findlay further demonstrated that technology, saving propensity, tax rate of foreign profit and backward dependency on foreign capital are important factors that determine the transfer of technology from an advanced country to a backward region.

The wave of foreign direct investment changed completely by 1980s due to the harmful effects of import substitution strategy and hostile attitude demonstrated toward foreign investment adopted in the 1970s. The East Asian economies for instance felt the consequences and were forced to shift their attention from dependency theory to more liberal policies in order to attract foreign investment (Hein, 1992).

Many optimistic theories of FDI were advocated around this period such as the Cost of Capital Theory, two gaps model, and accelerator investment model. The cost of capital theory is linked to international trade. It states that prospective foreign investors move their capital resources in response to changes in rates of returns on investment. Capital is expected to flow from a capital surplus to a capital deficit country in response to a higher productivity of capital until the rates of returns are equalized. The theory also justifies the existence of foreign direct investment from the ground that such an enterprise has managerial skill or technological advantage, which it can exploit in the foreign economies.

Two gaps model establishes a relationship among exports, imports, savings, investment and foreign capital. This two-gap comprises of the foreign exchange gap *(Import-Export)* and the domestic savings gap *(Investment-Savings)*. To fill these gaps, Chenery and Strout (1996) see its expedients to lobby for foreign investment in order to achieve economy's target growth rate. Foreign capital inflow helps to eliminate foreign exchange gap by allowing new investment project, importing plant and machineries, technical assistance and intermediate goods. The elimination of savings gap brings about sustained growth rate.

According to Accelerator investment model, investment occurs to enlarge the stock of capital to produce more output. Under this framework, the decision to invest is to correct any discrepancy between desired capital stock and actual capital stock.This implies that the volume of investment is not only adjusted to current output, but it is also influenced by previous output with falling weight. Although this model has been widely applied in the developed countries, it is of little relevance to developing economies such as Cameroon because of its underlying assumptions (e.g., existence of perfect markets) and lack of reliable data on capital stock.

Recent theories of FDI advocated from 1990s integrate many aspects of the economy and are neither in support nor against FDI inflow. Wang (1990) builds a dynamic two-country model to

examine the interaction between growth and international capital movement. According to him, human capital plays a crucial role in determining the effective rate of return for physical capital which affects the direction and magnitude of international capital movements. The model predicts that the steady-state income gap is narrowed by an increase in the growth rate of human capital and the technology diffusion rate in the LDCs. He therefore concluded that FDI facilitates technological change, and hence increases the rate of income growth.

Walz model developed by Walz (1997) incorporates FDI into endogenous growth framework where MNCs play a critical role with respect to growth and specialization patterns. He applied trade-related international knowledge spillovers in Grossman and Helpman's (1991) model to FDI and concluded that knowledge spillover of MNC's activities make innovations in the low wage country profitable. The indirect transfer of technology through FDI stimulates active R&D and growth. Therefore, Walz predicts that policies promoting FDI will lead to faster growth.

Dunning (2002) developed an Eclectic FDI theory where he attempts to integrate a variety of strands of thinking. Inspirations were drawn partly on macroeconomic theory and trade, as well as microeconomic theory and firm behaviour (industrial economics). The theory is labeled OLI where: O stands for Ownership advantages; L is Localization advantages; I is internalization advantages. Ownership advantages include firm specific capital known as knowledge capital, human capital (managers), patents, technologies, brand and reputation. This capital can be replicated in different countries without losing its value, and easily transferred within the firm without high transaction costs.

Localization advantages include **p**roducing close to final consumers or downstream customers, saving transport costs, obtaining cheap inputs, jumping trade barriers and provide services (for most services production and delivery have to be contemporaneous). Internalization advantages prevent a firm from the risk of contracting out (transferring the specific capital outside the firm and revealing the proprietary information such as on how to use the technology or the patent). This theory therefore suggests that the greater the ownership and internalization advantages possessed by firms and the more the L advantages of creating, acquiring and exploiting these advantages from a location outside its home country, the more FDI will be undertaken. Ownership-Localisation-Internalization (OLI) theory permits us to identify four types of FDI.

This typology of FDI explains the different objectives of FDI: Resource seeking FDI; Market seeking FDI; Efficiency seeking FDI; Strategic asset/capabilities seeking FDI.

Resource seeking FDI is the type that seeks and secures natural resources such as minerals, raw materials, or lower labour costs for the investing company. For example, a German company opening a plant in Slovakia to produce and re-export to Germany. Market seeking FDI aims at identifying and exploiting new markets for the firms` finished products. Unique possibility for some type of services for which production and distribution have to be simultaneous. Automotive transnational companies have invested heavily in China for this purpose. Efficiency seeking FDI's target is to restructure its existing investments so as to achieve an efficient allocation of international economic activity of the firms; international specialization whereby firms seek to benefit from differences in product and factor prices and to diversify risk; and, global sourcing – resource saving and improved efficiency by rationalizing the structure of their global activities. The activities are undertaken primarily by network based Multinational Companies with global sourcing operations.

Strategic asset/capabilities seeking FDI where MNCs pursue strategic operations through the purchase of existing firms and/or assets in order to protect ownership specific advantages in order to sustain or advance its global competitive position; acquisition of key established local firms; acquisition of local capabilities including research and development; knowledge and human capital; acquisition of market knowledge; preempting market entrance by competitors; and, preempting the acquisition by local firms by competitors. It is therefore noticed that the earliest theories of FDI were very optimistic. FDI was seen as an importance source of finance to complement domestic capital. By the 1970s the story changed. Dependency and substitution theories came up to condemn the role of foreign capital in the host economies. Today, recent theories blend the optimist and pessimist views by defining conditions where and when foreign capital inflow is necessary in the host country especially LDCs.

2.3 The concept of Financial Development

A common characteristic of financial markets everywhere, but more markedly so in developing country contexts is the fact that the market is highly segmented (Nissanke and Aryeetey, 1998). This is usually categorized in terms of formal, informal as well as an intermediary financial

segment known as semi-formal financial sector. The financial institutions of some countries like Cameroon can also be grouped into the private, public and semi-public financial sectors. Public financial institutions are those solely owned by the state purposely to carter for public interest and ensure the smooth functioning of the economy such as BEAC. Private financial institutions on the other hand are those solely owned and controlled by private individuals mainly for profit motives. The Private financial sector in Cameroon is diversified and includes a good number of commercial banks, investment banks, loans and saving institutions and a host of other minor financial institutions in the country.

Formal financial sector is one officially recognised and authorised by the monetary authority with a well-defined text to function in an economy. In Cameroon, there include the central bank at the apex, commercial banks, development and business banks, insurance and leasing companies among others. The masses excluded from the services of formal financial sector are compelled to develop unorthodox banking facilities, which unfortunately are less efficient.

Informal financial sector is a unit operating without any official recognition and is neither declared by law nor the monetary authority to function in the economy such as the traders and saving collectors, group arrangements for savings, rotating saving and credit association (ROSCA's). Adams (1992) defines informal financial as the financial activities that are not regulated by the central bank supervisory authorities. The sector is an efficient response to problems of small-scale lending in high risky environments with little or no physical and social collateral. They are characterised by lack of regulation and supervision and sometimes with relatively high effective interest rates. The high interest rate in the sector is due to high level of risk, uncertainty and information cost associated with the sector activities (Bell, 1990).

Semi-formal financial sector (SFFS) comprises of institutions which are usually subjected to some kind of licensing or registration. This includes institutional credit programs run by NGOs such as group lending schemes, credit unions and cooperatives (Gibson and Tsakalotos, 1994). Examples in Cameroon include saving credit cooperatives (COOPEC) like SOCABAIL and credit union (CAMCCUL).

2.3.1 Definition and measurement of Financial Development (FD)

Financial development is defined in literature as the improvement in quantity, quality and efficiency of financial intermediary services. This process involves the combination of many activities and institutions. Some commonly used measures of financial development are the ratio of broad money to GDP (M2/GDP), Commercial-Central Bank Assets, Private Credit as a ratio of GDP, Bank Credit, and Stock market liquidity and size.

It is very difficult to construct accurate and comparable measures of financial services data for a country over several decades. Levine *et al.* (2000) have constructed several financial market series, spanning from the stock market to the volume of lending in an economy. These variables can be classified into two broad categories: those relating to the banking sector (or loosely, credit markets) and those relating to the stock market (or equity markets).

One of the commonly used measures of financial development is the ratio of broad money (M_2) to Gross Domestic Product (Liquid Liabilities ratio). This indicator, which measures the degree of monetisation of an economy, has been used as a standard measure of financial development in numerous studies, including King and Levine (1993), Wood (1993), Murinde and Eng (1994), Lyons and Murinde (1994), Gelb (1989), Calderon and Lui (2003), Odhiambo (2004), amongst others. A higher M_2/GDP ratio for instance, implies a larger financial sector and therefore greater financial intermediary development.

M_2/GDP equals currency plus demand and interest-bearing liabilities of banks and nonfinancial intermediaries divided by GDP. It is the broadest measure of financial intermediation and includes three types of financial institutions: the central bank, deposit money banks, and other financial institutions (Levine *et al.*, 2000). Hence, Liquid Liabilities ratio provides a measure for the overall size of the financial sector without distinguishing between different financial sectors.

This measure has, however, been the subject of many criticisms. Its major weakness, according to Ghirmay (2004), is that it is likely to measure the extent to which transactions are monetized, rather than functions of the financial system such as savings mobilisation, as presented in the theoretical models. Thus, an alternative to the broad money ratio is the ratio of bank deposits to GDP as a better proxy for financial development.

The ratio of bank deposits to GDP excludes currency in circulation from the broad money stock. This indicator of financial sector development has been used in many studies (Demetriades and Hussein, 1996; Luintel and Khan, 1999; Suleiman and Abu-qarn, 2007). Although this measure reflects the capacity of financial intermediaries to mobilise savings, it may, however, not be closely related to financial services such as risk management and information processing. The rationale behind this measure is the fact that, in developing countries, a large component of the broad money stock is currency held outside the banking system.

In principle, a rising ratio of broad money to income may reflect the more extensive use of currency, rather than an increase in the volume of bank deposits. Therefore, in order to obtain a more representative measure of financial development, currency in circulation should be excluded from the broad money stock since it is not intermediated through the banking system (Xu, 2000). Commercial-Central Bank Assets is equal to the ratio of commercial bank assets divided by commercial bank plus central bank assets. It measures the degree to which commercial banks versus the central bank allocate society's savings. King and Levine (1993) and Levine *et al.* (2000), as well as others, have used this measure, which provides a relative size indicator, that is, the importance of the different financial institutions and sectors relative to each other. The liquid liabilities ratio and the ratio of commercial bank assets measures explained earlier, do not differentiate between the end users, whether the claims are in the public or the private sector.

The ratio of credit to the private sector to GDP is another frequently used indicator of financial development (Ang and McKibbin, 2007; Zang and Kim, 2007; Odhiambo, 2007; Lufeyo, 2007; and Apergis *et al,* 2007). This ratio is used to assess the allocation of financial assets, which the first two indicators (the ratios of broad money to GDP and bank deposits) cannot provide. Therefore, an increase in these first two ratios does not necessarily mean an increase in the productivity of investments. On the other hand, the ratio of private credit to GDP is related to the quantity and efficiency of investment, and hence to economic growth (De Gregorio and Guidotti, 1995). Private credit ratio has a clear advantage over measures of monetary aggregates such as M1, M2, or M3, in that it represents more accurately, the actual volume of funds channeled into the private sector.

Credit to the public sector is excluded because credit provided to the private sector normally generates increases in investment and productivity to a much larger extent than credit provided to the public sector. It is also argued that loans provided to the private sector better shows the improved quality of investments emanating from financial intermediaries' evaluation of project viability than loans directed at the public sector. A similar but less comprehensive measure of financial development is bank credit ratio. This measure excludes credits issued by the central bank and credits to the private sector by non-money banks (Levine, 1999). The share of private sector credit in domestic credit may equally be useful in capturing the extent of domestic asset distribution within an economy.

Another indicator of financial development is the ratio of domestic credit to GDP. This represents the domestic assets of the financial sector. It includes credits granted to both the private and public sectors. It is expected to increase in response to improved price signaling. This ratio has been used extensively in a good number of studies, including Odedokun (1996), Unalmis, (2002), Agbetsiafa (2003), Habibullah and Eng (2006), Acaravrci *et al.* (2007), and Apergis *et al.*(2007), amongst others. However, the indicator is criticized in some studies (Lynch, 1996). Government credit from banks in countries with a highly regulated financial system is frequently captive, and banks have no control over its use. In addition, financial system that simply funnels credit to the government or state-owned enterprises may not be evaluating managers, selecting investment projects or pooling risks to the same degree as a financial system does when it allocates credit to the private sector.

Stock market liquidity and size measured as the value of stock trading relative to the size of the economy are equally used in some studies. In order to capture the relative size of the stock market, the average value of listed domestic shares on domestic exchanges in a year as a share of the size of the economy or GDP is used (capitalization). This measure is of less significant in Cameroon since the stock market is still at its infancy.

2.3.2 Theoretical and historical evolution of the concept of financial development

The role of financial sector was essentially absent from the early literature on development. Academics and policy makers in this period believed that finance emerges in an economy only after a country reaches a certain stage of development. The first theoretical examination of

financial development was incorporated in the work of Bagehot (1873). He was one of the earliest Economists to write on the nature of the relationship between financial systems and economic growth and concluded that financial markets facilitate the accumulation of capital and manage risk inherent in particular investment projects and industries. Again, that the industrial power of a country is the ability of its financial markets to mobilize savings to finance "immense works".

To verify Bagehot's view, many empirical studies have been carried out to assess the role of finance in economic growth. A bulk of these studies find a positive and significant role of finance in determining growth, some find the relationship to be bidirectional and others find it to be country specific. Schumpeter (1911) argued that the services provided by financial intermediaries stimulate innovation and economic growth. Robinson (1952) argued that financial systems emerge in a passive way that responds to the needs of the real economy that is, where enterprise leads, finance follows. Early empirical work appeared to confirm that, economic growth and financial development occurred in tandem, with no compelling evidence of a causal relationship.

Toward the second half of the last century, economists discovered the role of finance in growth and began to incorporate it in both literature and empirical studies. The possible directions of causality between financial development and growth are labeled by Patrick (1966) as the supply-leading and demand-following hypothesis. The theories shed light to the question of whether financial development promotes economic growth, or economic growth propels financial development.

The supply-leading hypothesis posits a causal relationship from financial development to economic growth, which means deliberate creation of financial institutions and markets, increases the supply of financial services and thus leads to real economic growth. Numerous theoretical and empirical writings on this subject have shown that financial development is important and causes economic growth. McKinnon (1973), King and Levine (1993), Neusser and Kugler (1998), and, Levine, Loayza and Beck (2000) support the supply-leading phenomenon.

The demand-following hypothesis on the other hand postulates a causal relationship from economic growth to financial development. Here, an increasing demand for financial services might induce an expansion in the financial sector as the real economy grows (i.e. financial

sector responds passively to economic growth). Gurley and Shaw (1967), Goldsmith (1969) and Jung (1986) support this hypothesis. Patrick (1966) equally came out with the stage of development hypothesis. According to this hypothesis, supply-leading financial development can induce real capital formation in the early stages of economic development. Innovation and development of new financial services opens up new opportunities for investors and savers and, in so doing, inaugurates self-sustained economic growth. As financial and economic development proceeds, the supply-leading characteristics of financial development diminish gradually and are eventually dominated by demand-following financial development.

Theories equally suggest that effective financial institutions help to overcome market frictions introduced by information asymmetries and transaction costs which foster economic growth through several channels. Specifically, they help to: (i) ease the exchange of goods and services by providing payment services, (ii) mobilize and pool savings from a large number of investors, (iii) acquire and process information about enterprises and possible investment projects, thus allocating society's savings to its most productive use, (iv) monitor investments and exert corporate governance, and (v) diversify and reduce liquidity and inter-temporal risk.

However, some economists still do not agree on the role played by finance in economic growth and development. This disagreement stems from the original classical dichotomy which considered the financial sector as a veil through which we can observe the real sector. Others show their skepticism about the role of the financial sector in economic growth by ignoring it (Lucas, 1988). However, there is a large literature that supports the point that the financial sector plays an important and significant role in economic development (North, 1981; Engerman and Sokoloff, 1996; Ergungor, 2003).

Recent theories do not have doubts on finance – growth nexus. Since the advent of economic and financial crises in the late 1980s, greater attention of researchers and policy makers has been shifted to modeling the determinants of financial development across countries or within a single country. In this light, some studies have supported the view that policies which encourage openness to external trade tend to boost financial development (Do and Levchenko, 2004; Huang and Temple, 2005). Huang and Temple (2005) identifies goods market openness, rate of inflation, investment rate as some important variables relating financial development. Evidence from

World Bank (1989) supported the view that financial liberalisation equally foster financial development.

The world economy has recently been mired in the most severe financial and economic crisis since the Great Depression in the 1930s as described by Bruno (2010). Consequently, theories on financial development are geared toward accelerating the real sector activities. Seetanah B. *et al* (2011) has presented one of the most recent theoretical and empirical studies in that respect. They amend the fact that financial development fosters economic growth and proceeds to investigate the determinants of financial development in Mauritius. Trade openness and financial liberalisation are important determinants of financial development, in addition to investment rate, per capita income and literacy rates, inflation, and cultural or religious forces.

From the theoretical evolution of financial development, it is noticed that theories on financial development were almost absent up to the 19th century. By the beginning of the 20th century, few research works conducted in the domain concentrated on finance- growth nexus with diverse conclusions. From 1950s, the role of financial sector on economic growth became prominent and a bulk of theories was developed to validate the hypothesis with few exceptions. Recent attention since the 1980s crises is geared toward the correlation between financial development indicator(s) and other macroeconomic variables like investment, inflation, level of education, government spending, in addition to growth rate of GDP.

Having elaborated theories which permitted us to sort out some major determinants of financial development, it is imperative to proceed on how the development of financial sector is linked to economic growth. This is done after examining the concept of real exchange rate.

2.4. The concept of Real Exchange Rate

2.4.1 Definition and measurement of real exchange rate

There are various definitions of real exchange rate (RER) with different implications and problems. Traditionally, the definition of RER has tended to rely on the purchasing power parity (PPP) approach, where RER is the product of the nominal exchange rate and some foreign price index divided by the domestic price index. It has measuring problems and problems in the choice of the variables, and equally, PPP may greatly differ with real exchange rate (Tshibaka, 1991).

In neoclassical trade theory, the real exchange rate is regarded as the ratio of the price of tradable to that of non-tradables goods. It takes into consideration importables, exportables and home goods. The major problem with this approach is on how to separate the tradables from the non-tradables among and within sectors. Equilibrium real exchange rate is defined in the Edwards model as the relative price of traded and non-traded goods which ensures simultaneously the internal and external balances of the economy with underlying capital. According to Edwards (1988), the real exchange rate measures the real domestic terms of trade between traded and non-tradable goods. Thus, it is interpreted as the ratio of the prices of tradables (P_T) to the prices of non-tradables (P_N).

An operational definition as pointed out in Elbadawi and Soto (1997) uses the weighted wholesale price index (WPI) of principal trading partners or the weighted export and import price indices, and the consumer price index (CPI) or the GDP deflator for P_T and P_N, respectively. In this specification, the RER measures the relative purchasing power of the countries' currency. An appreciation of the real exchange rate would divert resources away from tradables to non-tradables, while depreciation will have an opposite effect. In other words, a decline in the RER suggests that non-tradable goods were increasingly protected in comparison with tradable goods, and that exportables were becoming cheaper than non-tradables for domestic consumers and less profitable for producers (Elbadawi and Soto, 1997).

The theoretical definition of the RER in term of the ratio of prices of tradables to non-tradable goods (P_T/P_N) has been criticized due to difficulty in getting the price of non-tradables. Non-tradable goods constitute a large group of heterogeneous consumer and producer goods, or services that tend to be close substitutes to some tradable goods in consumption and production. An improved and operational definition regards the real exchange rate as the nominal exchange rate (NER) corrected for the ratio of the weighted average of import and export prices to the GDP deflator. The GDP deflator is used as a proxy for the prices of home goods which is presumed to weigh heavily in this deflator and the price of traded goods are presumed moves broadly in line with foreign prices.

2.4.2 Theoretical and historical evolution of the concept of real exchange rate (RER)

Existing studies have produced a number of different theories on the estimation of the exchange rate due to different data and econometric methods used. Not all the theories that are actually used are suitable for forecasting the movement of exchange rate. In this chapter, two sets of theories are investigated: theories of exchange rate determination (discussed in this Section) and theories emphasizing the relationship between exchange rate and economic growth (discussed in Section 2.6.3). Theories of real exchange rate measurement and determination has evolved greatly over time. Each of the theory has its preconditions, implications, strengths and weaknesses which are helpful in modeling and establishing relations with Real Exchange Rate.

One of the earliest theories of exchange rate is the purchasing power parity (PPP) model elaborated by Cassel Gustav in 1922. PPP is a partial equilibrium model which associates the equilibrium RER with the value of the real exchange rate in a period of external balance (known as the base year), adjusted for inter-country differences in inflation rates (Elbadawi, 1992; Elbadawi and Soto, 1997). The theory is one of the best exchange rate determination theories which rely much on goods arbitrage. It suggests that the exchange rate readjust to equalize good prices under floating exchange rate system in different countries once measure in the same currency 'law of one price'. That is, the exchange rate between two or more currencies is determined by the purchasing power of the currencies in their respective countries of circulation in a free market. PPP theory which is classified into two types (absolute PPP and relative PPP) is covered in this review as a starting point for understanding how exchange rates are determined in the goods market. It is equally referred to as the inflation theory of exchange rates since it builds a linkage between the exchange rate and prices of goods in two economies.

In absolute term, PPP theory states that an exchange rate between two currencies is equal to the ratio of prices indices in the two countries. That is, exchange rate expresses relationship between the price index of identical bundle of goods in domestic currency and in foreign currency. Increase in domestic price relative to foreign price will provoke proportionate rate of currency appreciation and vice versa.Absolute PPP is established on the law of one price with the following preconditions: perfectly competitive goods markets in two different economies; identical production technology for individuals; neutral-risk preferences; absence of trade barriers such as transport costs, tariffs and trade quotas. Actually, the preconditions for absolute PPP do

not hold since transport costs, tariffs, and technological/preferential differences exist at all times and places. Absolute PPP is rejected by most empirical surveys since it is equivalent to the real exchange rate being constant. Relative PPP which allows exchange rates to deviate from absolute PPP is preferable.

In relative term, PPP theory is one that adjusts to inflation differential in different countries. In this sense, real exchange rate of a particular period is obtained by expressing the exchange rate of the previous period weighted by ratio of prices indices for the period divided by the ratio of prices indices for previous period. In this way, if the exchange rate of a period exceeds that of the previous period, it implies that the country is more competitive. It equally shows the extent of currency depreciation/appreciation in eliminating external imbalances. Empirically, both absolute PPP and relative PPP in the short run are rejected, but some studies find that relative PPP seems to hold in the long run. The theory is termed partial equilibrium theory because it deals only with the goods market, and ignored the assets market.

Interest Rate Parity (IRP) is another popular partial equilibrium exchange rate theory which examines how the exchange rates are determined in financial markets. Since interest rates change frequently in the short run, interest rate parity is thought of as short run exchange rate theory. Interest rate parity also has two types, covered interest rate parity (CIRP) and uncovered interest rate parity (UCIRP), both of which are based on the assumption that asset markets are frictionless and that there is no arbitrage. A lot of evidence supports CIRP as a forward exchange rate pricing model. However, variations in monetary policy, degree of risk aversion, political risks, barriers to capital mobility, and microstructure variations in the market may cause persistent variations in the risk premium over time. UCIRP and the Fischer open condition are also covered in this review, but both lack support from empirical studies.

The partial equilibrium models of exchange rate (PPP and IRP) were strongly criticized for considering only certain aspects of the economy. Both Relative PPP and absolute PPP consider only the goods market while covered interest rate parity and uncovered interest rate parity consider only the assets market. In this regard, there is need to develop a general equilibrium models of exchange rate. Mundell-Fleming model is one of the first general equilibrium theory which is a monetary model extended from a closed ISLM model. The model assumes that prices are preset in the short run. The model is regarded as a general equilibrium model because it

considers the internal monetary market equilibrium, goods market equilibrium, and external equilibrium condition and the balance of payments.

One of the most important forecasts of this model is the so called trilemma, which states that perfect capital mobility, monetary policy independence and a fixed exchange rate regime cannot be achieved simultaneously. In the long run, the exchange rate level is perfectly correlated with the level of monetary supply, and monetary policy may only play a trivial role in economic growth. Another important forecast is that devaluation may lead to further devaluation if fiscal discipline, inflation and the balance of payments are not well managed, because a self-fulfilling bubble may be produced. Finally, the impact of devaluation on current account improvement may be weakened if an economy is heavily dependent on the re-export processing industry.

Dornbusch model is another monetary model that loosens the condition that prices must be preset as in Mundell-Fleming model, but allows for slow price adjustments. A famous insight into policy implication of this model is the overshooting of the nominal exchange rate over its long-run equilibrium, when an economic system is shocked with monetary supply. This character is regarded as an advantage of a fixed exchange rate regime over a floating one. This model shows that once a real economic shock happens, markets may move to equilibrium either through a flexible exchange rate or change of prices. The difference between the two is mainly that in the latter, adjustment may consume more time and be less risky than in the former.

In a case where prices are relatively flexible and inflation can be controlled in a moderate range, a fixed exchange rate regime is desirable. However, these models lack micro foundations, and fail to elucidate the effect of the balance of payment on the determination of the exchange rate. Notwithstanding, their clear implications for policymakers should not be underestimated.

Ballasa-Samulson model partly addressed the issue of the lack of a micro foundation in modeling work by incorporating productivity differentials or technological changes in production into a one-factor production technology model, which was then extended to a two-factor model. The main contribution of this model is that they built linkages between productivity, output and the real exchange rate (terms of trade) through the rational behaviour of producers. However, they fail to incorporate paper money or nominal exchange rate and the behaviour of the demand side that might have important impacts on the exchange rate.

Relux model is one of the latest important developments in exchange rate studies. The model is the pioneering work of Obstfield and Rogoff in 1996, whose model incorporates the demand side. However, this model still relied on PPP and price pre-setting. Though it allows the welfare effects of different shocks to be compared, it merely seems to be a Dornbusch model based on maximization behaviour. There are still many deficiencies in the model. First, it does not consider investment and producer behaviour; second, it regards absolute PPP as a precondition, but this has not been supported by empirical studies.

Turning to equilibrium real exchange rate (ERER) estimation, many approaches have been proposed in literature over time. Starting from PPP approach, elasticities approach, DLR (Devarajan, Lewis and Robinson) approach based on an extension of the Salter-Swan model, and to the fundamental approaches. The purchasing power parity (PPP) concept associates the ERER with the value of the real exchange rate in a period of external balance (known as the base year), adjusted for inter-country differences in inflation rates. The elasticity approach estimates the ERER that will equilibrate the balance of trade. Here the ERER is defined as the rate for which the market is in equilibrium or at an acceptable or sustainable level of disequilibrium. The DLR approach divides the economy into three goods: exports, imports and domestic goods. In this approach, the ERER is that real exchange rate which is consistent with a particular current account target, given changes in import and export prices, and terms of trade shocks. All these approaches have their shortcomings as outlined in Chapter 5.

The fundamentals approach (Edwards, 1989; Williamson, 1994; and Ghura and Grennes, 1994; Elbadawi and Soto, 1997; Baye and Khan, 2002) is more current which measures the evolution of the RER as a function of the fundamentals variables (terms of trade, public expenditures, trade liberalization or openness technical progress, capital flows, and so on) of the economy. It estimates the responsiveness of the RER to changes in these fundamentals. Long term real exchange rate in the Edwards model depends exclusively on real variables. Equilibrium exchange rate evolves following a trajectory determined by fundamental modifications. In the works of Ghura and Grennes (1994), Aron and al (1997), Cottani and al (1990), Elbadawi and Soto (1997) Aron *et al.*,(1997) taken as a whole, real exchange rate determinants are mainly the terms of trade, the openness degree of the economy, capital flows, Foreign exchange reserves, and Per capita real GDP growth relative other countries.

Summarily, we have discovered that the earliest theories of exchange rate were regarded as partial equilibrium models. They treated only a particular aspect or sector of the economy. For instance, the Relative and Absolute Purchasing Power Parity (PPP) concentrated only on the goods market and the Covered and Uncovered Interest Rate Parity consider the assets market. Latter developments were on general exchange rate equilibrium models such as the Mundell-Fleming model, which deals with the equilibrium of the goods market, money market and balance of payments, but lacks micro-foundations to some extent. Weaknesses in the Mundell-Fleming model were considered in the Dornbusch model and ameliorated in Balassa-Samuelson model built on the maximization of firms' profit. Some recent theories of exchange rate incorporate both the partial and general equilibrium labeled as Hybrid Models.

In modeling the equilibrium real exchange rate, many approaches have been adopted such as the PPP approach, Elasticities approach and DLR approach. Recent attention is geared toward the use of fundamental approach which examines the evolution of the RER as a function of fundamentals variables like term of trade, trade policy, public spending and a host of others.

2.5 Concepts of Economic Growth

2.5.1 Definition and measurement of economic growth

Economic growth refers to the expansion of the total production of goods and services of a country over a given period (national income). Economic growth is usually measured by the pace of change of gross domestic product after adjustment for inflation (known as real GDP). Nominal GDP, on the other hand, refers to the market value of goods and services produced by a country and it can increase due to a rise in production of goods and services or a jump in their prices or both. The real GDP growth rate is equal to the nominal GDP growth rate minus the inflation rate (Oyieke, 2004). Gross domestic product (GDP), is the unduplicated value of all goods and services produced in a year within country's borders measured at market prices. It is the standard measure of the overall size of the economy. The simplest definition of economic growth is an increase in real gross domestic product (GDP). The growth rate of real GDP is the percentage change in real GDP from one year to the next.

Economic growth rate is measured differently in literature. Different indicators have been used such as the growth rate of GDP, nominal GDP per capital, real GDP and real GDP per capital. In the ongoing study, growth rate is measured as growth rate of real GDP computed as percentage change in real GDP and real GDP is computed as GDP divided by GDP deflator.

2.5.2 Theoretical and historical evolution of the concept of economic growth

Growth theory is an important part of modern macroeconomics analysis. The analysis of growth has long been based on the Solow (1956) "growth accounting" approach, also described as neo-classical growth theory, which has two predictions about growth in the long-run. These predictions are that economic growth occurs as a result of exogenous technological change, and that income per capita of countries will converge.

Harrod-Domar Growth Models is the pioneering growth model named after Harrod (1939) and Domar (1946) which demonstrated that capital formation raises the standards of living, which in turn results in higher growth. Harrod-Domar model basically compares the natural growth rate and warranted growth rate. It emphasizes that natural growth rate is as a result of increase in labour force in the absence of technological change as compared to the warranted growth rate, which depends on the savings and investment habits of households and firms. However, the Harrod-Domar model examines the long-run problems of the economy by using the short-run tools.

Solow model after Solow (1956) strongly criticizes the Harrod-Domar model due to its assumption of fixed proportion of factors of production and substitutability between labour and capital. This neoclassical economist argues that capital formation increases labour productivity in a dynamic process of investment growth. In traditional neoclassical Solow-type models of growth, with diminishing returns to physical capital, and exogenous technological change, FDI cannot affect the long-run growth rate. These theories predict that countries with the same preferences and technology will converge to identical levels of income and asymptotic growth rate subject to the absence of international capital mobility. Factor mobility enforces this prediction that capital always flows from capital abundant countries to where it is scarce leading to long run equilibrium with the equalization of capital-labour ratio and factor prices.

Neoclassical theory holds that most ideas concerning economic growth start from the aggregate production function where factors of production determine gross national output. According to the theories, growth comes about in three ways if land is held fixed. That is, from increase in the labour supply, increase in the capital stock, and, increase in productivity. Increasing labour supply generates a larger output. Real output rises if more people take part in a country's production. Capital increase can be divided into two parts, increase in physical and in human capital. Physical capital increases output because it enhances the productivity of labour and provides valuable services directly. Human capital promotes economic growth by increasing the skills of workers. The theory equally emphasized the important technological change as a mean to accelerate productivity through the process of invention and innovation.

Recently, Romer (1986), Lucas (1988), Barro (1990) and Rebelo (1991) developed the endogenous growth theory which highlights the fact that the labour force must continuously be provided with more resources, if productivity is to increase. Resources in this case include physical capital, human capital and knowledge (technology). Therefore, growth is driven by accumulation of factors of production, while accumulation in turn is the result of investment in the private sector. This implies that the only way a government can affect economic growth, at least in the long-run, is via its impact on investment in capital, education, and research and development. Based on the endogenous growth model, provision of incentive for investment, enhancement of financial development and improvement on external competitiveness of the country facilitate capital accumulation and investment and tend to promote growth of GDP

2.6 Linkages between Foreign Direct Investment, Financial Development, Real Exchange Rate and Economic Growth

2.6.1 Linking foreign direct investment with economic growth

Literature has widely acknowledged the fact that foreign direct investment (FDI) is a very crucial financial source of non-debt inflows and technological transfer (Bajpai and Sachs, 2000). FDI would lead higher economic growth not only via capital accumulation and employment generation, but it also influences economic growth through positive spillover efficiency in the form of imitation of foreign technologies, increasing the competition of domestic firms, and improving linkages between domestic and foreign firms (Sjoholm, 1999; Zang, 2001).

UNCTAD (2006) asserts that FDI has the potential to generate employment, raise productivity, transfer foreign skills and technology, enhance exports and contribute to the long-term economic development of the world's developing countries. It can be argued that economic growth depends on technological progress and FDI can play a crucial role because it facilitates technology diffusion.

Zang (2001) noted that FDI is likely to be an engine of host country's economic growth, for the following reasons: inward FDI may enhance capital formation and employment generation; FDI may promote manufacturing exports; FDI may bring resources into host country such as, management know-how, access of skilled labour to international production networks, and established brand names; and FDI may result in technology transfers and spillover effects.

According to Pradhan (2003), FDI affects economic growth through filling saving-investment gap with non-debt financial inflow; relaxing foreign exchange constraints; productivity spillovers and firm specific intangibles like technology and marketing. These facilitate technological diffusion, increase competitiveness of domestic firms and increase potential to generate employment thereby leading to economic growth. The mechanism of FDI growth nexus is summarized under the methodology section of chapter three.

2.6.2 Linking financial development with Economic Growth

The financial sector is at the forefront of the increasingly integrated knowledge-based economy (Levine, 1998). Functions of the financial system have a direct effect on growth and productivity. The impact of financial systems on economic growth occurs through several channels such as savings mobilization; managerial monitoring; resource allocation; risk management; trade facilitation; contribution to technological advancement.

Savings mobilization is the most fundamental function of capital markets. Individual savers typically cannot fund borrowers' needs completely. Financial markets pool the savings of households and make the funds available for investment. The scale of this exercise lowers transaction costs. Borrowers go directly to financial markets rather than individual savers, which is clearly more cost efficient. A related function is the creation of liquidity. The amount of time required to repay a loan may not be in line with the plans of an individual to recoup his savings.

Pooling allows the financial system to lend to short- and long-term endeavours, allowing investors to earn higher returns than would otherwise be possible. Stock markets are particularly important in this regard, as equity constitutes a significant portion of firms' long-term capital.

Resource allocation is another channel through which financial sector affects growth. Due to the high cost of obtaining information, individual savers are not in a position to evaluate whether particular borrowers or projects are worthwhile. Financial system develops skills which enables them to better decide who receives loans. Financial institutions therefore identify and screen credit worthy borrowers. The institutions and professionals in the financial system have expertise that may allow them to better evaluate information about operations and projects. The degree of transparency of such information is integral to the functioning of the economy.

Financial system equally assists in managing risk since investment is inherently risky owing to imperfect information and exogenous events. Theory demonstrates that portfolio diversification is the best means to minimize risk. Having pooled the savings of individuals, financial markets are able to diversify across a range of investments, thereby minimizing risk to return. Financial institutions equally monitor the use of credit over the life of an investment. That is, financial markets, including institutions, capital markets and public institutions and policies, all serve to monitor the actions of managers and entrepreneurs.

Financial market also facilitates trade and contributes to technological advancement. It supports individuals as they "buy now and pay later", which adds tremendous efficiency to the economy. The financial services industry is among the largest purchasers of information technology software and hardware in the economy, which helps drive the process of innovation and the dissemination of technology throughout the other sectors of the economy. Thus, the activity of the financial sector itself helps to drive productivity growth for the economy as a whole.

These factors contribute to capital accumulation, technological innovation, lower transaction cost, reduces magnitude of cyclical fluctuation, identify and screen credit worthy firms and provide

low cost information on investment opportunities. This in turn feed directly to economic growth as explained by the traditional Solow growth model (king and Levine 1993)[5].

2.6.3 Linking exchange rate with economic growth

The Balassa-Samuelson effect and the Houthakker-Magee-Krugman approach are two main theories identified in literature which explain the link between exchange rate and growth. The Balassa-Samuelson hypothesis focuses exclusively on supply side effects based on secular movements of real exchange rates. It centers on the role played by internal price ratio (that is, the ratio of non-tradable to tradable goods prices) in introducing systematic trends into real exchange rates. It argues that unbalanced growth in a country's traded sector relative to its non-traded sector, can impart a secular trend into the real exchange rate. In particular, the proposition is that countries with relatively high productivity in its non-tradable goods sector will likely weakness depreciation of their real exchange rate. This will encourage investment, improve on current account balance and strengthens export competitiveness and enhances economic growth, defined using overall price levels.

However, a country that exhibits relatively high productivity growth in its tradables sector over time is likely to have a secular appreciation of its real exchange rate. This may deters investment, harms export competitiveness and increases vulnerability to crises thereby retarding GDP growth. The major shortcoming of the Balassa-Samuelson hypothesis is the fact that it focuses only on the implications of trends in productivity for long-run real exchange rates, ignoring shortrun adjustments. The longrun nature of the model means that relative prices are driven by supply side factors, with demand side factors being ignored.

Many studies such as Canzoneri *et al.* (1996), Chinn and Johnston (1999) and MacDonald and Ricci (2000) have however examined the Balassa-Samuelson effect for both developing and developed countries. A statistically significant relationship between relative productivity differences and the overall real exchange rate was found.

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[5]King and Levine used carefully designed methods to demonstrate the statistical significance of the causal relationship between finance and growth where they found that the level of financial development in a group of countries in 1960 was shown to predict subsequent economic growth over the following 30 years.

The Houthakker-Magee-Krugman 45° Rule labeled HMK approach[6] focuses exclusively on demand side effects and is based on external price ratio. It suggests that there is a secular drift in exchange rate unless a particular lock does not hold between a country's relative growth rate and its relative export and import income elasticities. That is, a relatively fast growing country should have a depreciating exchange rate to maintain its current account balance. Relatively slow growing country should have an appreciating exchange rate, unless the relative growth rate between the home country and the rest of the world is equal to the ratio of relative income elasticities of demand.

There are essentially two explanations for the 45 degree rule. First, it could be that income elasticities determine growth. For example, if a country faces an unfavourable configuration of income elasticities - high import, low export - it could face severe external imbalances if growth is relatively high. This, in turn, may force the authorities of that country to put a limit on economic growth to maintain a relatively stable real exchange rate. An alternative explanation for the 45° rule relies on a supply-side interpretation for the apparent differences in demand that countries face. More specifically, as a country grows, its supply schedule for exports shift to the right, requiring a secular depreciation of the real exchange rate. In this case, adjustments on the demand side are necessary to neutralize the situation so as to maintain the 45° rule.

Exchange rates equally affect economic growth, through their influence on international trade, and on investment. Trade literature suggests a number of channels through which exchange rate affect trade at the sectorial level. These include the ability of a country to exploit increasing returns due to the exposure to larger markets; the transference of technology across countries through exposure to new goods and also investment; trade may cause a spillover of ideas across countries thereby raising the productivity of research and by increasing the size of the market may increase the incentive of researchers to undertake research.

On the possible effect of exchange rate on growth through international trade, Proudman and Redding (1996) assesses the consequences of these different effects for growth in the UK in the 1970s and conclude that comparative advantage itself is unlikely to explain the relatively fast growth of manufacturing output in the1970s. On the effect exchange rate movements on growth

[6]The HMK rule was first noted by Houtakker and Magee (1969) and Krugman (1989) formalized this relationship into the so-called 45° rule

through investment, exchange rate leads to capacity adjustments in existing industries, exchange rate movements equally alter the relative attractiveness of domestic versus foreign production - that is, the relocation of production facilities across countries in the form of foreign direct investment (FDI).

Real exchange rate (RER) which is a function of many fundamental variables (as discussed in Chapter 5) affects economic growth depending on the nature of distortion in its equilibrium. Defining RER as the ratio of price of tradable to prices of non-tradable (as in Edwards, 1989; Williamson, 1994; Elbadawi and Soto, 1997; Baye and Khan, 2002, and others), RER appreciates when the price of non-tradable exceeds the price of tradable goods. This will transmit into reduction in productivity of investment in tradable goods, exacerbating investment, deteriorating the current account, harming export competitiveness, increasing vulnerability to crises and therefore affects growth negatively.

On the other hand, RER undervaluation or depreciation encourages investment, ameliorates current account balance, strengthen export competitiveness, reduces an economy susceptibility to crises and may therefore enhance growth. Figure 5.3 in chapter 5summarizes the various determinants of RER and the channel through which RER affects growth

Large inflows of capital in developing countries are associated with the danger of destabilizing macroeconomic management due to a sizeable appreciation of the real exchange rate as demonstrated in the Salter-Swan-Conder-Dornbusch model. The model assumes that prices for tradable goods are exogenously determined. This model points to a "spending effect," by which the increase in wealth following higher capital inflows, combined with exogenous tradable prices, causes the prices of non-tradable goods and services to rise. These higher prices lead to an expansion in the non-tradable sector.

2.6.4 Linking the four variables and deriving the research hypotheses

This section shows the sub and global transmission mechanisms of possible nexus among the various variables and concepts. From the theories of FDI anaysed so far, many correlates of FDI could be identified. These variables include Government Finance, Trade openness of the economy, Real Exchange rate, Degree of industrialization, Financial Development,

Infrastructural development, Availability of skilled labour, Market size and a host of other factors. Their significant vary with countries and over time.

The market size hypothesis holds that a large market is necessary for the efficient use of resources and exploitation of economies of scale. This is more conceivable because most foreign firms being profit seeking firms should be motivated by larger market size of the host economy. This hypothesis is substantiated by External Capital Requirement theory which holds that, countries with small internal market, relatively underdeveloped infrastructure and limited export potentials may have difficulties in attracting FDI in substantial magnitude into their economies irrespective of any existing incentive schemes (Njimanted, 2009).

The macroeconomic stability hypothesis holds that economic stability is necessary to reduce the element of risk and uncertainty associated with investments. It follows that more stable economy characterized with lower rate of inflation, which reflect a lesser degree of uncertainty, is more attractive to investors. These two factors are expected to complement FDI inflow in Cameroon. Large market size of the recipient country as well as more stable macroeconomic environment attract more foreign investment into the country assuming other factors constant (***first hypothesis:*** H_1).

Theoretical evolution of financial development and avenues through which it is linked to growth discussed earlier permit us to sort out a number of determining factors of the concept. These factors may include Size of Government expenditure, financial liberalisation, Rate of inflation, Level of education, Degree of trade openness, and, Investment rate (Domestic and FDI). Apart from high rate of inflation which deters financial development, the rest of these variables tend to foster financial development.

Most especially, financial liberalisation has a positive relation with financial development. Liberalisation has to do with the removal of all sorts of government restrictions on the operations of the financial system such as interest rate ceiling, directed credit policies, and high reserve requirements which may hinder financial deepening. Therefore financial liberalisation is likely to promote financial development by increasing the quality and quantity of financial services.

Another key influencing factor is the level of investment. To invest, there is need for finance, as such, increase in investment rate call for more financial services leading to financial development. It is therefore not erroneous to hypothesize a positive link between investment rate as well as financial liberalisation and financial development (***second hypothesis: H_2***).

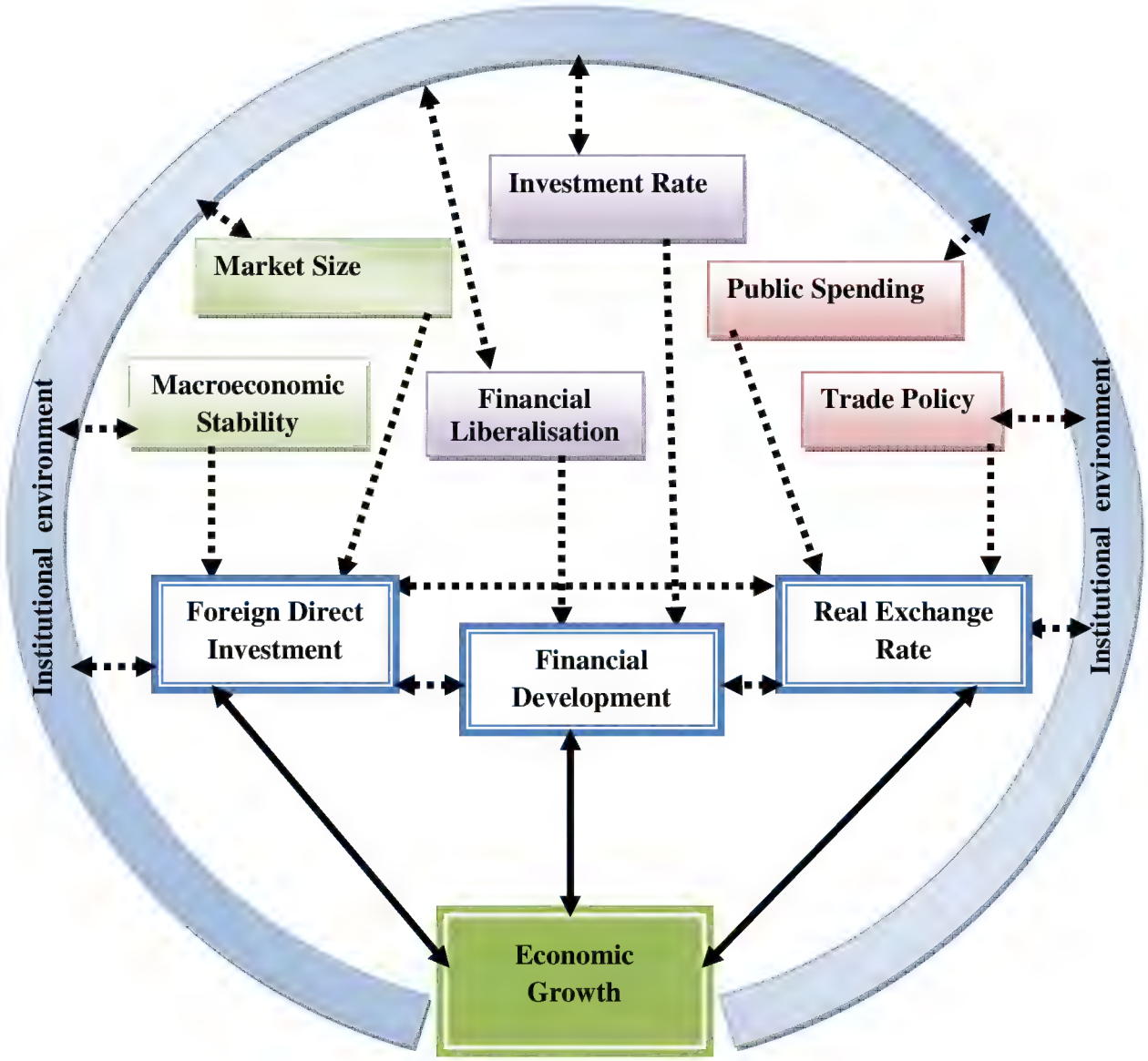
Following the fundamental approach of real exchange rate (RER) discussed, RER is measured in term of the ratio of price of tradable to price of non tradable. RER responds to macroeconomic fundamental such public expenditure, term of trade, trade openness, foreign direct investment, foreign borrowing and financial development. We can theoretically hypothesize an appreciation effect of government expenditure on real exchange rate. This is logical because government always spend on the non-tradable sector such that an increase in government spending raises the price non-tradable relative to those of tradable leading appreciation of real exchange rate.

In addition, the relationship between trade openness variable and real exchange rate is negative. This implies that the more a country is opened towards foreign countries the greater the RER of the country is likely to appreciate. Liberal trade measures reduce trade barriers, render export more competitive, shift their supply curve to the right and thus lower their relative prices. Decrease in the prices of tradable relative to those of non-tradable results to overvaluation of the domestic currency. This implies that government spending and trade policies have the general tendencies of appreciating the real exchange rate of domestic currency (***third hypothesis: H_3***).

FDI facilitates technological diffusion, generate employment and increase efficiency thereby contributing to GDP growth positively. Growth prospect acts as incentive for FDI inflow. On the other hand, financial sector facilitates capital accumulation, encourages technological innovation and dampens cyclical fluctuation in economic activities thereby promoting growth and as GDP expands there is need for more financial services. RER appreciation (PT< PN) on it part, reduces productivity of investment in tradable goods, exacerbates investment, harms export competitiveness and therefore slows down economic growth rate. Economic growth increases productivity, lowers prices of tradable and appreciates the RER. It follows that FDI, financial development and RER have important implications for economic growth at the theoretical view point (***fourth hypothesis: H_4***)

The figure below summarizes the possible linkages among our four macroeconomic variables of interest as identified from the preceding sections.

Figure 2.1 linking the FDI, Financial Development, RER and economic growth



Key:

Nexus between the main variables of interest

Linkages between other correlates and the main variables

***Source*:** Designed by the Author

It is observed from the flow diagram (at the theoretical front) that financial development, foreign direct investment, real exchange rate and their respective determinants affect economic growth directly or through the institutional environment. Financial development and, FDI appear to influence economic growth positively while the effect of real exchange rate (RER) is expected to be positive for RER depreciation and negative for RER appreciation.

2.7 Conclusion

From the foregoing sections, we realized that theories developed on FDI, financial development and real exchange rate had been evolving greatly over time. The historical evolution of the different concepts permitted us to sort out the various determinants of the variables. Equally, the a priori behaviour of the different variables and concepts of interest is clarified.

The implication of foreign direct investment measured as net FDI, financial development considered as credit to the private sector and real exchange rate for economic growth has been summarized with a comprehensive flow diagram (figure 2.1). The various hypotheses (main and specific hypotheses) of the studies have been derived from the conceptual framework. The hypotheses (H) are as summarized below assuming other factors constant:

H_1: Large market size of the recipient country and stable macroeconomic environment are complementary with foreign direct investment inflow to Cameroon.

H_2: Financial liberalisation like gross investment fosters financial development of a country by increasing the quality and quantity of financial services.

H_3: Since government always spends more on the non-tradable sector than on the tradable sector, government spending is expected to raise the relative prices of non tradables leading to appreciation of the real exchange rate. In a like manner, trade openness reduces trade barriers on tradables and hence lower their relative prices compared to those of non-tradables which appreciate the RER. It follows that restrictive trade measures could be adopted to prevent the RER appreciation in Cameroon.FDI increases competitiveness of domestic firms and generate employment through filling of saving-investment gap, relaxing of foreign exchange constraints and export/ productivity spillovers. With this, FDI inflow is expected to promote economic growth.

Financial sector facilitates the process of capital accumulation, technological innovation, and provides low cost transactions and information on investment opportunities. Thus, the link between financial development and economic growth is positive.

Again, RER appreciation indicates that the relative prices of non- tradables exceed those of tradable commodities (PT< PN). This reduces productivity of investment in tradable goods, deteriorates current account and harms export competitiveness. Therefore, RER depreciation is likely to foster economic growth.

H_4: It follows that, economic growth is greatly influenced by FDI, financial development and real exchange rate.

Having established theoretical linkages among the variables and other predictors, we shall proceed with empirical verifications of the various hypotheses. The next chapter is reserved for the determinants of FDI to test the market size and macroeconomic stability hypotheses.

Chapter Three

MARKET SIZE, MACROECONOMIC STABILITY AND FOREIGN DIRECT INVESTMENT IN CAMEROON

3.1 Introduction

Theories provide controversial views on the effects of foreign direct investment (FDI) inflow on host countries. Advocates of complementary theory of FDI hold that foreign capital inflow is a convenient package to foster industrial development (Mello, 1991; Campos and Kinoshita, 2002; Hansen and Rand, 2004). FDI replaces the inferior production technology in developing countries by a superior one from industrialised countries (Kojima, 1978). It equally breeds competition which reallocates resources to more productive activities. Foreign investors build and upgrade infrastructural facilities which benefit the entire economy. There has been substantial growth in international transactions, especially in the form of foreign direct investment owing to its benefits.

In the contrary, the dependency theory postulates that FDI operates to discourage domestic savings, widen the gap and inequalities between the rich North and poor South (Haavelmo, 1963; Griffin *et al.*, 1970; Culem, 1988; Morisset, 1989; Mencinger, 2003). In addition, FDI is regarded as a new form of dependency to replace colonialism. Such capital flow is profit oriented without concern for welfare of people (Jhingan, 1995). In the early years, FDI and Multinational Enterprises in general were perceived as an evil that negatively influenced internal decision making, induced loss of control over domestic policies, and imported obsolete technology (Awa, 1993; Zisuh, 2003).

The causes and effect of FDI depend on the purpose of the investment: whether it is resource seeking, efficiency seeking, market seeking or capacity seeking (Dunning, 2002). In a developing country with numerous natural resources but low technology, foreign direct investment is imperative to complement domestic investments. It helps to reduce the saving-investment gap, break the vicious cycle and get the economy out of underdevelopment and deep rooted poverty (Chenery *et al.*, 1996; Bosworth *et al.*, 1999; Mileva, 2008). Even if FDI tends to substitute domestic investments as argued by dependency scholars, the complementarily effects overwhelm the former, especially in developing countries.

A country like Cameroon has provided all the necessary incentives at the national and international level to boost FDI inflow to the economy. This include, among others, the attractive investment code of 1990, Trademarks Act (Bangui Agreement) of 1997, Industrial Designs act and law No. 2000/011 on copyright (Njimanted, 2009).

Recent data show an increasing trend of FDI in Cameroon, but Cameroon's net FDI to GDP ratio still lags behind the sub-Saharan Africa average, and is even much lower than the average for all low-income countries (Nunnenkamp *et al.*, 2002). Cameroon has therefore not been very competitive in attracting FDI (Khan and Bamou, 2006). There was a gradual increase in net FDI inflow to Cameroon during the post-independence period. The rate was encouraging during the oil boom era with the average of 1.78 percent from 1978 to 1985 compared to 0.3 percent in the early 70s. The severe economic crisis period (1986 to 1993) saw a drastic fall in FDI. After the devaluation of Franc CFA in 1994 and the successful implementation of some economic reforms, FDI was again on the rise. This has continued ever since, but still remains lower than the sub-Saharan African average despite the number of incentives put in place (Khan *et al*, 2006 and Njimanted 2009).

Special attention is then needed to examine the determinants or causes of FDI in Cameroon like in other developing countries. According to Ohlin (1933), foreign direct investment is motivated mainly by expected profitability and low rates of interest in the host country. FDI is attracted to different countries to benefit from abundant and cheap natural or human resources, market potentials or strategic assets (Dunning, 2002). From the studies of Loree and Guisinger (1995), Balasubramanyam (2001), Garibaldi *et al.* (2001), Nunnenkamp *et al.* (2002), Khan *et al.* (2006), Njimanted (2009) and many others put together, the possible determinants of FDI inflow include: the size of the local market, the rate of GNP growth, economic stability, the degree of openness of the economy, risk factors, years of schooling, firm entry restrictions, institutional environment, technology regulation, exchange regime, economic reforms, availability of natural resources, infrastructure, barriers to investment and bureaucracy.

The most famous factors commonly significant in many studies are inflation rate or economic stability variable, trade openness, market size of the host country and level of infrastructure. The impact of host country wage level, rate of per capita income growth, institutional quality, physical infrastructure, macroeconomic stability, and political stability on

FDI inflow is usually positive (Chakrbarti, 2001; Hsiao, 2001; Biswas, 2002 and others).

A good number of empirical studies on the determinants of FDI used panel data for comparative examination of these factors with controversial results. Few country-specific studies used basically the Engle and Granger co-integration techniques. Data set used in the studies is not usually recent. Specifically, the few recent empirical studies conducted in Cameroon regarding FDI inflow do not make use of recent econometric techniques nor attempt to evaluate the causality between variables (Khan and Bamou, 2006; Njong, 2008; Njimanted, 2009). For instance, Njimanted used the OLS and co-integration ECM, to examine the determinants of FDI (taken as the log of FDI in current period) in Cameroon from 1970 to 2007. Khan and Bamou (2006) study the empirical determinants of FDI in Cameroon using data up to 2006 but never consider the effect of macroeconomic stability. With these lapses at the level of data, econometric approach and neglect of some key variables, a key question arises:

- What are the main determinants of FDI in Cameroon?

Specifically,

- Does the market size variable significantly influence FDI inflow to Cameroon?
- Is macroeconomic stability an important variable in attracting FDI in Cameroon?

The main objective of this chapter is therefore:

- To examine the main determinants of FDI in Cameroon.

Specifically;

- To investigate the link between market size and FDI inflows in the short and long-run
- To determine the effect of general economic stability on FDI in Cameroon

Two research hypotheses are apparent from the objectives, assuming other things constant:

- Market size of the host country is positively related to the inflow of FDI
- Macroeconomic stability has a positive impact in attracting FDI inflows to Cameroon.

This chapter makes two main contributions to the empirical literature. First, it examines the links between market size variable and FDI, and equally between macroeconomic stability and FDI.

We check for the unit roots property of the data and investigate the linkages in three ways. That is, using the bound test / Engle and Granger residual- based cointegration test, shortrun Granger causality test, and weak exogeneity test to establish longrun causality between the variables.

Second, it applies recent econometric techniques of co-integration and uses recent Cameroon's annual time series data. A series of diagnosis tests are conducted to ensure that the model has a correct functional form and model's residual are serially uncorrelated, normally distributed and homoskedastic.

To better attain these objectives, the rest of the sections are structured as follows. Section 2 examines the trend of net FDI, Market size and economic stability variables in Cameroon. Section 3 discusses the literature review and theoretical framework. Section 4 describes data and econometric techniques used in investigating short and long-run relationships between the variables. Empirical results are presented in section 5 while section 6 is reserved for interpretation and discussion of the results followed by conclusion in section 7.

3.2 Trend of foreign direct investment, market size and economic stability variables in Cameroon

The evolution of FDI and associated variables in Cameroon from the post-independence to present day can be clarified by dividing the recent economic history of Cameroon into five sub periods. The division is in function of significant economic events witnessed by the country and some major economic policy changes made by the government during these periods.

During the post-independence era (up to 1977), the economy was dominated by the agricultural sector. Agriculture was the principal source of economic growth, employment and foreign exchange earnings through the export of primary crops like cocoa, coffee and cotton. Net FDI ratio remained very low, averaging 0.3 percent of GDP. The general economic environment was relatively not very stable with increasing inflation rate which rose up to 17.2 percent by 1974. The growth of market size variable (growth of GDP per capita) was fluctuating throughout the period with the average of 4.6 percent. There was no explicit attempt to encourage foreign investors (Khan *et al.*, 2006). FDI during this period was concentrated mainly in the primary and secondary sectors of the economy. The growth rate of real GDP was estimated at 4.42 percent.

The oil-boom era (1978–1985) was characterized with the discovery and exploitation of crude oil. The oil sector attracted a lot of FDI into the country. This period recorded the highest net FDI flows to Cameroon in the 19th century with most of it going into the oil industry. Net FDI averaged US$125.1 million annually accounting for over 1.7 percent of GDP. Macroeconomic atmosphere gained stability as inflation rate fell by 2 percent from the previous period average. GDP per capita recorded a growth rate of 4.3 percent. The economy witnessed an important change, as oil replaced agriculture as the main source of foreign exchange.

The era of economic crisis and failed reforms (1986–1993) was characterized by continuous fall in prices of Cameroon's main export commodities. Economic activity shrank in most areas. Real GDP growth turned negative. The real effective exchange rate appreciated by some 40 percent (Ghura, 1997) owing especially to the depreciation of the French franc vis-à-vis the CFAF. Several attempts to get the country out of the crisis failed. Foreign Direct Investment deteriorated sharply. The harsh economic atmosphere did not favour FDI inflows as investment instead fled the country. The GDP per capita growth became negative (-7.1 percent on average) indicating the absence of a market to attract FDI inflows, especially, market-seeking foreign investors to Cameroon. For most of this sub-period, net FDI flows were negative with the average of -0.1 percent of GDP likewise for several sub-Saharan African countries (Ajayi, 2000).

The post-devaluation era (1995–2002) extends the effects of devaluation[7] on trade and investments. Both bilateral and multilateral donors reacted by almost doubling the amount of net official flows. The economic milieu regained stability, GDP per capita turned positive coupled with reforms carried out in the financial sector, trade and regulatory framework. All these appear to have had a positive impact on net FDI flows in Cameroon as FDI inflows rose and at the same time outflows fell drastically. Average annual net FDI flows to Cameroon within this sub period turned positive and stood at US$35.45 million accounting for 1.3 percent of GDP. The upward trend continued, reaching more than 5.5 percent in 2002 (INS, 2010 and WDI, 2011)

[7] Given the magnitude of the macroeconomic imbalances, it became clear by the end of 1993 that internal adjustment alone was not sufficient to put the economy back on its rails. Other countries in the Franc Zone were facing similar difficulties and to remedy the situation, the CFA franc, which had been pegged to the French franc in 1948, was reluctantly devalued by 50% in January 1994.

Although the average net FDI from 2003 to 2010 was looking encouraging from WDI (2011) data for Cameroon, the figure for 2006 was barely 9 millions of US$ and for 2009 was almost zero. Market size variable fell to barely 0.8 percent on average. It was negative (-0.21 percent) in 2009 where growth rate of real GDP was just 1.9 far below the period average growth of 3.04 percent although the average rate of inflation was only 3.02 percent. This seems to be the outcome or symptoms of the recent worldwide financial crisis.

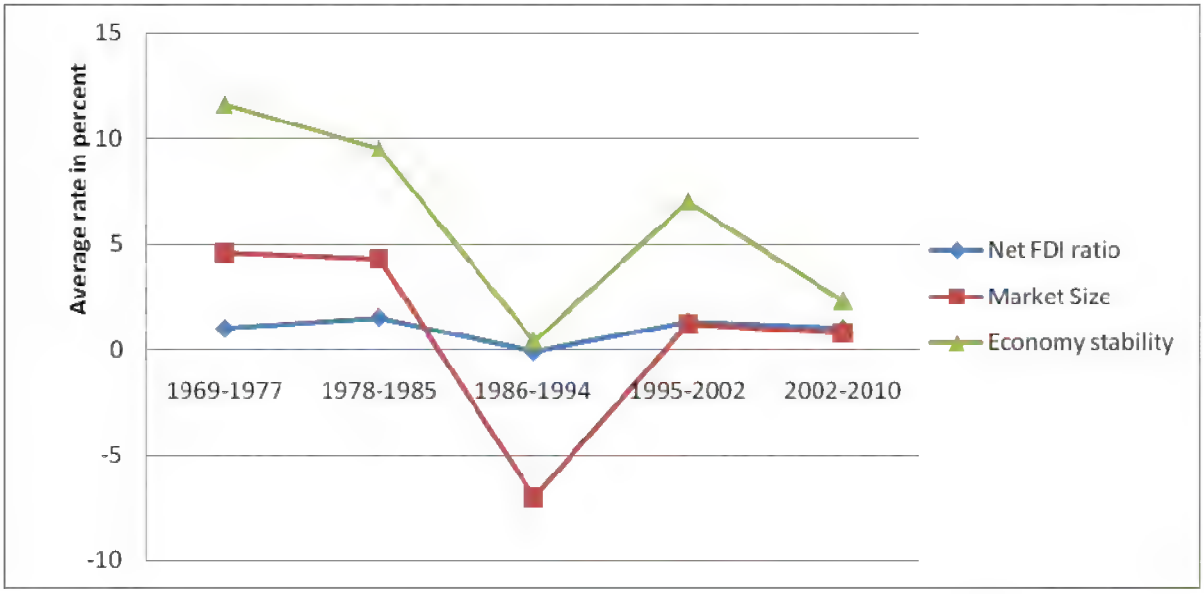
The following table and graph summarize the trend in these variables from post-independence period to 2010

Table 3.1: Evolution of net FDI inflow ratio, market size and economic stability in percent

Period		Net FDI ratio	Market Size	Economy stability
Post-independence era	1969-1977	1.0	4.6	11.6
Oil-boom era	1978-1985	1.5	4.3	9.5
Era of economic crisis	1986-1994	-0.1	-7.0	0.4
Post-devaluation era	1995-2002	1.3	1.2	7.0
Recent era	2002-2010	1.0	0.8	2.3

Source: Constructed by the Author using data from WDI (2011) and INS (2010)

Figure 3.1: Evolution of net FDI inflow ratio, market size and economy stability[8] in percent



Source: constructed by the Author

The graph reveals that the trend in the evolution of net FDI inflow ratio was insignificant in the 1970s. It increased steadily from 1977 to over 400 billion FCFA in 1983 accounting for 1.78 percent of GDP. At this period, inflation rate was declining indicating that the economy was gaining stability. This inverse relationship is equally observed in the last two periods' averages. The relationship between these variables was not very noticeable in the crisis era. It appears equally from the graph that market size variable varies directly with FDI inflow to Cameroon with the former being more sensitive. It rises and falls with greater amplitude than the later. For instance, in the economic crisis era, market size fell sharply by over 7 percent meanwhile net FDI inflow declined by an estimate of 1.5 percent.

[8] Economic stability is constructed from inflation rate as maximum rate of inflation minus the various annual rates of inflation experienced in the economy

3.3 Literature review

3.3.1 Theoretical review

The first theoretical studies of the determinants of foreign direct investment (FDI) date back to Adam Smith, Stuart Mill and Torrens. Ohlin (1933) is amongst the first authors to address the issue and noted that direct foreign investment is motivated mainly by the possibility of high profitability in growing markets, along with the possibility of financing these investments at relatively low rates of interest in the host country. Other determinants were the necessity to overcome trade barriers and to secure sources of raw materials. Since then, extensive literature on the determinants of foreign investment flows to developing countries has been established. The literature shows that FDI is attracted to different countries for different reasons, among them are resource seeking (natural or human resources), market seeking and efficiency seeking or strategic – asset seeking.

The hypothesis of direct investment being determined by specific assets that compensate the initial disadvantage faced by foreign firms in relation to local firms was developed by Hymer (1960), Kindleberger (1969) and Caves (1971) and has became known as the HKC tradition. According to Hymer, (1960) Multinational firms (MNFs) are able to compete with local firms that have a much better knowledge of the local market and environment, only because MNFs present some sort of compensatory advantage such as discrimination regarding access to capital (skill advantages); internal and external economies of scale arising from vertical integration and governmental intervention through restriction on imports. With these advantages, MNFs prefer to supply the foreign market by way of direct investments instead of through direct exports.

Kindleberger (1969) added that the market structure is the major determinant of the conduct of the firm, by internalizing its production and not the behavior of multinational firms that determine the market structure. Caves (1971), develops a similar analysis, in which structure dictates conduct. Regarding the determinants of FDIs, Dunning (2002) traced that there exist substantial differences between the flows that only involve developing countries, whether between home and host countries, and those in which the host countries are developing countries. In the former case strategic asset-seeking investments take place, in which FDI is used in mergers and acquisitions, seeking horizontal efficiency. In the second case,

investments are characterized by the search for markets, and resources, thus being of vertical efficiency.

Generally speaking, FDI decisions depend on a variety of characteristics of the host economy, in addition to its market size. These include the general wage level, level of education, institutional environment, tax laws, and overall macroeconomic and political environment. The impact of host country wage level or education level on FDI depends on the skill intensity of the particular production process in question and, hence, may vary from case to case. The impact of institutional quality, physical infrastructure, import tariffs, macroeconomic stability, and political stability on FDI inflow is usually positive (Wei, 1997; Biswas, 2002), whereas that of corporate taxes tends to be negative (Wei, 1997; Hsiao, 2001).

Turning to economic growth, the standard determinants include the rate of capital accumulation and variables that raise total factor productivity, such as education level, institutional quality, macroeconomic stability, political environment, and, potentially, trade openness. In studying the direct, causal relationship between FDI and economic growth it is vital to explore the relevance of some of aforementioned economic and political economy variables.

On the relation between FDI and economic growth, Chenery and Strout (1966) reiterated that countries must improve in the areas of skills, domestic savings and foreign exchange earnings in order to achieve accelerated growth. They observed that most countries before 1966 were able to achieve economic transformation by clamoring for foreign aid and foreign debt. Considering the fact that the savings rate is low, to overcome poor growth and development in most developing countries, foreign aid is judged the only source of economic transformation.

Capital insufficiency which subjects LDCs to vicious cycle of low production and insufficient tools and low productivity is the major cause of FDI. The resulting situation as argued by Singer (1994) is mass poverty. The neo-classical economists therefore, recommend that for these developing countries to escape this vicious circle of poverty and achieve rapid economic growth and development, they must massively go in for foreign funds to augment domestic savings (Olaniyi, 1995).

FDI would be of help to LDCs as a convenient package of enhancing their capital base,

technology, access to export markets and management skills to foster their industrial development (Mello, 1991; Hansen and Rand, 2004). These benefits attracted to FDI support the governments of LDCs in their quest for economic empowerment through the demand for foreign capital investment. Like in Ghana, Kenya, Nigeria and other African countries, policies to attract and maintain foreign direct investment through various fiscal incentives have been adopted in Cameroon. This target is usually called the complementary hypothesis which regards FDI as a complement to domestic savings.

The substitution hypothesis postulated by Haavelmo (1963) however, maintains that, FDI instead operates to discourage domestic initiatives and savings, hence enhance wide gaps and economic inequalities between the rich North and the poor South. Some proponent of the idea see especially multinational corporations, which are a component of FDI as a new form of dependency replacing colonialism centred on peripheral relationships. To them, multinational companies are merely profit-oriented outfits without concern for the welfare of the people (Njimanted, 2009). As such, foreign direct investment should not be relied upon as means of promoting national growth and economic development because its crowds out domestic savings by allowing domestic residents to increase their consumption of goods and services at the expense of further investment.

Consequently, policies to discourage foreign capital inflow have been implemented in some countries. There has been open hostility to foreign investment and all kinds of restrictions have been put in place to discourage portfolio investment, private direct investment, foreign debt, and even foreign aid. According to Jhingan (1995), foreign aid is neither a necessary nor a sufficient condition for economic growth and development or poverty alleviation parameter.

Based on these arguments put forward by the complementary and the substitution hypotheses, and because of the serious policy consequences involved, greater intellectual rigour must be directed towards this area. Some studies have been conducted in this area with diversified conclusions. This is probably accounted for by inadequate methodologies.

In the following sections, some related empirical studies shall be briefly reviewed.

3.3.2 Empirical reviews

Empirical studies that attempt to estimate the importance of the different determinants of FDI concentrate more on attraction factors, i.e., location factors, since available data make it difficult to identify which countries the investments come from (push-factor such as capital propriety advantages), unless a large set of countries and years is analyzed. The main variables normally used are the size of the market, the rate of GNP growth, economic stability, the degree of openness of the economy, as well as several other institutional variables.

Some important recent studies which examine the empirical determinants of FDI are presented in the subsequent paragraphs. Nunnenkamp and Spatz (2002), studying a sample of 28 developing countries during the 1987-2000 period, find significant Spearman correlations between FDI flows and per capita GNP, risk factors, years of schooling, foreign trade restrictions, complementary production factors (Local raw materials needed for internationally competitive production), administrative bottlenecks and cost factors related to taxation, employment conditions, labour market regulation, the power of labor unions. Population, GNP growth, firm entry restrictions, post-entry restrictions, and technology regulation all proved to be non-significant. However, when regressions were performed separately for the non-traditional factors, in which traditional factors were controls (population and per capita GNP), only factor costs produced significant results and, even so, only for the 1997-2000 period.

Based on a dynamic panel of 26 transition economies between 1990 and 1999, Garibaldi *et al* (2001), analyzed a large set of variables that were divided into macroeconomic factors, structural reforms, institutional and legal frameworks, initial conditions, and risk analyses. The results indicated that macroeconomic variables, such as market size, fiscal deficit, inflation and exchange regime, risk analysis, economic reforms, trade openness, availability of natural resources, barriers to investment and bureaucracy all had the expected signs and were significant.

Loree and Guisinger (1995) study the determinants of foreign direct investment by the United States in 1977 and 1982 (both toward developed countries as well as toward developing countries), concluded that variables related to host country policy were significant in developed countries only when infrastructure was an important determinant in all regions.

The relation between economic growth and FDI deserves special attention. If, on one hand, economic growth is a powerful stimulant to the inflow of FDI, on the other, an increase in foreign investment – since this would mean an increase in the existing capital stock (*Greenfield investment*) – would also be one of the factors responsible for economic growth, meaning the existence of an endogeneity problem.

Borensztein *et al.* (1995) used data for the 1970 – 1989 period involving flows from developed countries to developing nations. The main conclusions were, in the first place, that FDI had a positive effect on economic growth, depending on human capital stock available in the host economy. However, when the level of human capital was low, the effect was negative. Secondly, FDI had an indirect effect on growth by attracting supplementary activities.

Buckley *et al.* (2002) used panel data for several regions in China for the Period from 1989-1998. It was pointed out that if the growth of FDI has positive effect upon GDP growth, the reverse does not hold true. Secondly, no evidence was found to support the hypothesis according to which the efficiency of FDI depends on a minimum level of human capital. Human capital is more significant in less developed provinces, while FDI stimulates growth notably in the more developed provinces. Empirically, the positive effect of economic growth on FDI and also the positive and negative effects of FDI on economic growth have been identified in the literature.

Nair-Reichert and Weinhold (2001) examined the effect of product growth on FDI based on panel data for 24 developing countries between the years of 1971 and 1985. The main conclusion here was that the relation between investments, whether foreign or domestic, and product growth was strongly heterogeneous, and that FDI efficiency was positively influenced by a country's degree of trade openness.

Generally, the positive growth effects of FDI have been more likely when FDI is drawn into competitive markets, whereas negative effects on growth have been more likely when FDI is drawn into heavily protected industries (Encarnation and Wells, 1986). Overall, though, FDI turns out to be associated with greater domestic investment, not smaller. Moreover, this positive association between FDI and domestic investment tends to be greater than that between foreign portfolio investment and domestic investment (Bosworth and Collins, 1999).

Holland *et al.* (2000) reviewed several studies for Eastern and Central Europe, producing evidence of the importance of market size and growth potential as determinants of FDI. Tsai (1994) analyzed the decades of 1970 and 1980 and addressed the endogeneity problem between FDI and growth by developing a system of simultaneous equations. Also, FDI was alternately measured as a flow, and as a stock. Market size turned out to be more important for FDI flows than growth. The trade surplus presents a negative sign and is significant for FDI, while the flow of FDI decreases as the nominal wage decreases. On the other hand, the impact of FDI on economic growth is quite limited.

Campos and Kinoshita (2003) used panel data to analyze 25 transition economies between 1990 and 1998. They reached the conclusion that for the set of countries FDI is influenced by economy clusters, market size, the low cost of labour, and abundant natural resources. Besides all these factors, the following variables presented significant results: sound institutions, trade openness, and lower restrictions to FDI inflows.

Most of these studies focus on cross section data, majority of which focuses on the FDI growth nexus (Sader, 1995; Nunnenkamp and Spatz, 2002; Mencinger, 2003; Yélé, 2004; Saha, 2005; Hansen and Rand, 2006; Mileva, 2008; and Njimanted, 2009). Few studies examine the various determinants of FDI (Dunning, 2002; Culem, 1988; Chakrabarti, 2001; Biswas, 2002 and others) with different methodology and results. The ongoing study deviates from others, by testing the significant of two frequently crucial variables: host market size and macroeconomic stability on FDI in Cameroon. Different parameters have been employed in literature to capture the effect of these variables. As discussed earlier, market size variable is considered here as GDP per capita while inflation rate is used to captured the effect of macroeconomic instability. Interestingly, this study uses recent Cameroon time series data from IMF, WDI and NIS (1960s to 2010) and employs the ARDL model of testing level cointegration relation which is still new in studies on foreign direct investment.

Having examined the empirical and theoretical literature on the determinant of FDI, we proceed to the methodology which shall permit us empirically investigate the targeted hypotheses. We start by describing the sources of data, discuss the a priori behaviour of variables and finally with the specification of an appropriate model.

3.4 Methodology

3.4.1 Theoretical framework and econometric model

3.4.1.1 Theoretical framework

An Illustrative framework use in this chapter begins by considering an open economy that capital may freely move between borders. Let us further suppose that domestic and foreign capital is perfect substitutes for factor of production; hence each pay the same rate of return, r, the world interest rate. Suppose that capital per person, k*, that exists in a domestic country at a particular time has two possible ownerships: domestic residents and foreigners. Suppose also that k is capital per person that belongs to domestic residents. Hence, k*- k represents total foreign investments in the domestic country. For matter of illustration like in Turkcan, Duman and Hakan (2008), we assume that k*- k>0, without loss of generality. In another interpretation, k*- k represents net claims by foreigners on the domestic economy. We assume that the model is single-good economy. The only function of openness in this model is the free movement of capital. We continue to assume that labour is immobile. The budget constraint for the representative household is

$$\dot{k} = w + (r-n).k - c \qquad (3.1)$$

Where k is capital per person owned by domestic residents, w is the real wage rate, r is the world's real rate of interest, n is the population growth rate, c is the consumption, and a dot on top of a variable indicates a time derivative of the variable.

Suppose that utility function of the representative consumer is defined as

$$U(c)=\int_0^{\infty} e^{-pt}u(c)Ldt \qquad (3.2)$$

Where U(c) is the overall utility, ρ is the subjective rate of discount, u(c) is the momentary felicity function, and L is the labour which grows at rate n. We assume that momentary utility is defined as $U(c)=\frac{c^{1-\theta}-1}{1-\theta}$, where θ is the elasticity of marginal utility.

The representative household's optimization problem implies constructing an optimal control problem, which yields:

$$\frac{\dot{c}}{c} = \frac{1}{\theta}(r - p) \tag{3.3}$$

Suppose that the production technology is represented by:

$$Y = F(K^*, N) \tag{3.4}$$

Where Y output, K* is total physical capital stock available in the domestic economy, and N is labour stock. The optimization conditions for the representative firm entail equality between the marginal products and the factor prices:

$$f'(k^*) = r \tag{3.5}$$

$$f(k^*) - k^* f'(k^*) = w \tag{3.6}$$

If we substitute for w from equation (3.6) into equation (3.1) and use equation (3.5), the change in assets per capita can be determined as

$$k' = f(k^*) - r(k^* - k) - nk - c \tag{3.7}$$

Note from equation (3.7) that it would become the standard equation of motion of Ramsey if the economy were closed, k*-k= 0. The difference between equation (3.7) and the macroeconomic budget constraint of Ramsey model is that the domestic economy is incurring rental cost for the total foreign capital that came in until time t. By definition, it must be true that k*- k = $\int_0^t FDIdt$, where FDI is the physical capital inflow from abroad at time t. If we take time derivative of this identity, we obtain that k*-k= FDI. Hence, we may alternatively express equation (3.7) as follows:

$$K' = f(k^*) - r(k^* - k) - nk - c + FDI \tag{3.8}$$

Given that **y=f(k*),** the growth rate of output g_y is

$$g_y = \frac{\dot{y}}{y} = \frac{f'(k^*)k^*}{f(k^*)}\frac{\dot{k}^*}{k^*} \tag{3.9}$$

Hence, the growth rate of domestic economy is positively supported by FDI, that is,

$$g_y = \frac{f'(k^*)k^*}{f(k^*)}\left[\frac{f(k^*)}{k^*} - r\frac{(k^*-k)}{k^*}r - n\frac{k}{k^*} - \frac{c}{k^*} + \frac{FDI}{k^*}\right] \quad (3.10)$$

Hence, g_y= h(FDI, Z) with h_{FDI} (.)>0 and Z represents vector of all variables that determine growth rate.

From the literature on the determinants of FDI exploited in the previous sections, the market size of host economy, macroeconomic stability, growth rate of economy, the real exchange rate, trade openness, infrastructural facilities and quality of labour force all contribute to determination of FDI. Hence, we may argue that the following FDI function is capable of capturing FDI behaviour:

$$FDI = f(g_y, N) \quad (3.11)$$

where N represents vector of variables next to the growth rate of domestic economy that contributes to the determination of foreign direct investment.

3.4.1.2 Specification of econometric model of FDI in Cameroon

To investigate the link between Market size, Macroeconomic stability and foreign direct investment for the case of Cameroon, we merely replace growth rate (g_y) in equation (3.11) by our main variables of concern. In this case, the general form of our econometric model becomes:

$$FDI_t = f(X_t, Z_t) \quad (3.12)$$

Where,

FDI_t is foreign direct investment (FDI as a percent of host country GDP)

X_t is the set of Market size and Macroeconomic stability variables.

Z_t represents vector of variables next to the Market size and Macroeconomic stability which influences foreign direct investment.

3.4.2 Variables description

Foreign direct investment, FDI, is the dependent variable**.** The literature discussed in the preceding sections of this chapter enables us to identify many factors (pull factors) that are likely

to influence foreign direct investment. The host country factors used as variables in the model include: market size, GDP growth, trade openness, skilled labour, political risk, government size, infrastructure, exchange rate, external debt and expected rate of inflation.

The hypothesis regarding the expected behaviour of these explanatory variables is briefly examined in the subsequent sections.

Level of macroeconomic stability (MES)

One major indicator of a stable macroeconomic environment is a record of price stability. Rate of inflation derived as the annual percentage change in CPI is used as a proxy for the level of economic instability. Considering that one of the classic symptoms of loss of fiscal or monetary control is unbridled inflation. One of the possible negative effects of inflation is its high variability, which can discourage long-term investment because it can be perceived as government malfunctioning that can result in government policies that hurt capital holders (Romer, 2006). It is also argued that high inflation is tied to exchange rate volatility, political instability and other undesirable factors (Temple, 1999).

History of low inflation and prudent fiscal activity signals to investors about the commitment and credibility of the government. Since investors prefer to invest in more stable economies, which reflect a lesser degree of uncertainty, it is reasonable to expect that inflation would have a negative effect on FDI flows implying that economic stability is positively related to FDI inflow.

Market size variables (MS)

An economy with large market size although alongside with other factors should attract more FDI. The market size hypothesis holds that a large market is necessary for the efficient use of resources and exploitation of economies of scale. Several proxies have been used in literature to capture this variable such as Market demand factors, host countries GDP, absorption capacity and private consumption. A number of studies find a positive and significant relationship between host country market size and FDI inflow such as Bajo-Rubio and Sosvilla-Rivero (1994); Love and Lage- Hidalgo (2000); Marchant, Cornell and Koo (2002); Filippaios *et al.* (2003); Lall *et al.* (2003); Tuman and Emmert, (2004), and Fedderke *et al.* (2006), and between FDI and GNP

(Culem, 1988; Barrel and Pain, 1996). This implies that countries with a larger GDP (market size) will attract more FDI.

The use of absolute GDP has been contested on the grounds that it is a poor indicator of market potential for the products of foreign investors, since it reflects the size of the population rather than their income or purchasing power (Chakrabarti, 2001). Like in Khan and Bamou (2006), GDP per capita is preferably used as a proxy for market size and it is expected to have positive effect on FDI.

Trade openness (OP)

Openness variable considers the relationship of the economy with the rest of the world. Degree of openness is captured as the ratio of exports plus imports to GDP. It is believed that a country with a greater degree of trade openness, which is more directed towards the external market, would also be more open to foreign capital. In other words, a higher degree of openness of an economy indicates not only more economic linkages and activities with the rest of the world, but also a more open and liberalized economic and trade regime. Although, openness may have a different effect on the inflows of different kinds of FDI, higher level of trade openness is expected to attract more FDI inflows, particularly the inflows of resource-seeking or export-oriented FDI. This is conceivable because most investors prefer to invest in a sector of exchangeable goods and this variable is a good proxy for the type of relation a given country has with foreign capital.

Real exchange rate (RER)

Real exchange rate is an important factor in investment decisions. It is a measure of international competitiveness. Servers and Solimano (1992) brought forth the findings that, while in the short-run effective currency depreciation impacts negatively on foreign direct investment, the long-run effect could prove to be positive. Host country currency depreciation can stimulate foreign investment (Froot and Stein, 1991) although its impact is ambiguous, as suggested by some empirical literature (Stevens, 1998). A number of studies find strong and negative effects of exchange rate on FDI (Cushman, 1985; Froot and Stein, 1991; and, Blonigen and Feenstra, 1996) although (Waldkirch, 2003) obtains a contrast results. In the present study, RER is expected to have a negative effect on FDI inflows.

Growth rate of real GDP (GR)

Growth prospect is an attraction factor which fits into a category Dunning (1993) describes as *market-seeking*, as mentioned earlier. A rapidly growing economy with greater prospect for further growth enhances growth in demand which provides relatively greater profitability opportunities for inflowing capital (Choe, 2003; Saha, 2005; Chowdhury and Mavrotas, 2006; Turkcan *et al.*, 2008). However studies like Hansen and Rand (2006) did not find any empirical effect of growth on FDI. Countries with stable macroeconomic environment characterised by high and sustained growth rates should receive more investments than more volatile economies. We therefore hypothesize a positive relationship between inward FDI and economic growth in Cameroon.

Government finance (FISD)

Government finance is an important variable that is expected to affect investment behaviours and investment flows. Increasing government liabilities could mean high fiscal deficits especially when these liabilities are used to finance huge external debts. An increase in foreign debt could be perceived, to some extent, by investors as a future increase in taxation to finance the servicing of the subsequent debt (Yélé, 2004). Hence large fiscal deficits increase the countries risks and could therefore hold back potential investors. In this study, government debt will be the proxy for government finance. The size of government debt burden is expected to have a negative effect on FDI flows.

Quality of labour force (QLF)

Availability of skilled labour (Human Capital) is another key pull factor that attracts FDI to a country. Both the costs and the quality of the labour to be found in the host country greatly influenced the decision of foreign investors on whether or not to invest and how much to invest. Countries where wages are higher, or where the labour force is less skilled, should find it more difficult to compete with other countries in attracting foreign investment. A more educated labour force can learn and adopt new technology faster, and the cost of training local workers would be less for investing firms. There is strong empirical evidence of the positive relation between FDI

and the quality of labour force, which is measured here by the percentage of the corresponding segment of the population enrolled in secondary school.

The level of financial development (FD)

The development of the domestic financial system determines to what extent the foreign firms will be able to borrow in order to extend their innovative activities in the host country. This would further increase the scope of the technological spillovers to domestic firms. Hermes and Lensink (2003) pointed out that FDI and domestic financial markets are complementary for the enhancement of the process of technological diffusion, thereby increasing the pace of economic growth. Given the crucial role that finance plays on investment decision, the effect of financial development taken as the ratio of credit to the private sector on FDI is expected to be positive in Cameroon.

Infrastructural development (STR)

The infrastructural facilities of a region are also important, since it indicates how difficult and costly it may be to operate business in the country. The more developed the road system in a country, for example, the easier the access to markets and the lower the transportation costs, and, thus, the greater the incentive to invest in that country. The multidimensional nature of infrastructure makes it difficult to measure, however. It comprises roads, telecommunications, and railways and so on. It is difficult to capture the many aspects of infrastructure development, and the data available are limited. Due to data constraint, we measure the level of infrastructural development by percent change in kilowatts of electricity production. Availability of sufficient electricity supply will facilitate and reduce the cost of doing business in Cameroon, and thus attract FDI inflows, thus we hypothesize a positive effect of this variable.

Level of industrialization (INDR)

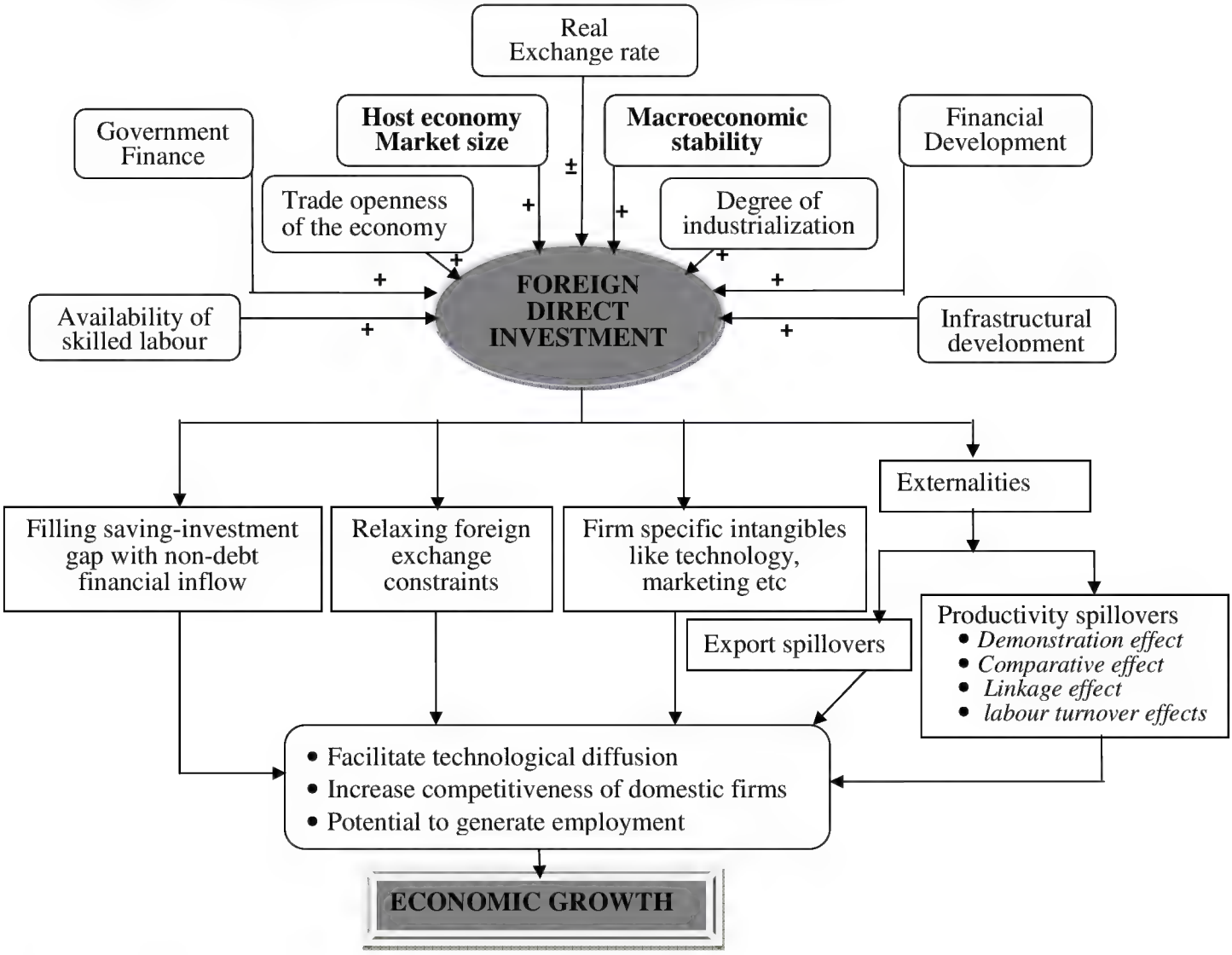
The level of industrialization of an economy is another major efficiency seeking variable that that may greatly influence the rate of foreign direct investment inflow to a country. The variable is measured in term of GDP-savings ratio and it is expected to positively influence the rate of foreign capital inflow to an under industrialised economy like that of Cameroon.

Export Processing Zone (EPZ)

The export processing zone created in Cameroon in 1990 had as one of its principal objectives to attract foreign investment. We use a dummy variable to capture its influence on FDI flows into Cameroon. This variable takes the value one as from 1992 (the year the first investments were carried out), and zero elsewhere. We expect a positive link between the creation of the export processing zone and FDI in Cameroon, given the numerous incentives it provided.

The following figure summarizes the aprori signs (expected relationship) of various variables that determine FDI and it possible link with economic growth.

Figure 3.2: Determinants of FDI and its links with economic growth



Source: Designed by Author from Pradhan (2003)

Having described the a priori signs of different exogenous variables, the next task is to formally develop the time series model in order to address the foreign direct investment issue

3.4.3 Long-run model of foreign direct investment

To examine the longrun cointegration equation for FDI, a model similar to the one developed by De Gregorio and Guidotti (1995) is used. It is obtained by rewriting equation (3.12) in an expanded form, taking into consideration all the independent variables discussed in the preceding section. The model to be estimated based on time series data is expressed as follows:

$$Log(FDI)_t = \alpha_0 + \alpha_1(MS)_t + \alpha_2 Log(MES)_t + \alpha_3 Log(OP)_t + \alpha_4 Log(RER)_t + \alpha_5(GR)_t + \alpha_6 Log(FISD)_t + \alpha_7 Log(QLF)_t + \alpha_8 Log(FD)_t + \alpha_9 Log(STR)_t + \alpha_{10} Log(INDR)_t + \alpha_{11}(EPZ)_t + \mu_t \quad (3.13)$$

Where

FDI= Foreign direct investment (FDI as a percent of host country GDP)

MS= Market size (taken as host countries GDP per capital)

MES= Macroeconomic stability proxy as percent change in Consumer Price Index (CPI)

OP= Trade openness (sum of import and export as a percent of GDP)

RER= Real Exchange Rate

GR= Growth prospects (growth rate of real GDP)

FISD= Government Finance (taken as the size of fiscal debt)

QLF= Quality of labour force (as segment of population enrolled in secondary school)

FD= Financial development considered as credit to the private sector as a percent of GDP

STR= Level of infrastructure development (percent change in KW of electricity production)

INDR= Level of industrialization taken as the GDP savings ratio.

EPZ= Export Processing Zone (captured as a dummy)

u_t is the error term.

3.4.4 Error correction mechanism of FDI

According to Engle and Granger (1987), cointegrated variables must have an error correction model representation. The error correction model takes care of short-term divergences. As such,

models with a long-run relationship but having short-run divergences can be given an error correction model. For such models, the error correction mechanism captures the short-run dynamics while making them consistent with long-run dynamics. The ECM is advantageous because it uses stationary data, thus avoiding the risk of spurious regressions.

In the context of time series data, the general way of relating variables in the long-run FDI function to capture short-run adjustments, is to specify a flexible dynamic distributed lag model, which includes an error correction term from a co-integrating relationship as in equation (3.13)

$$\Delta Log(FDI)_t = \alpha_0 + \alpha_1\Delta(MS)_t + \alpha_2\Delta Log(MES)_t + \alpha_3\Delta Log(OP)_t + \alpha_4\Delta Log(RER)_t + \alpha_5\Delta(GR)_t + \alpha_6\Delta Log(FISD)_t + \alpha_7\Delta Log(QLF)_t + \alpha_8\Delta Log(FD)_t + \alpha_9\Delta Log(STR)_t + \alpha_{10}\Delta Log(INDR)_t + \alpha_{11}\Delta(EPZ)_t + \Theta\hat{\mu}_{t-1} + \nu_t \quad (3.14)$$

Where $\hat{\mu}_t$ is the residual term, from a cointegrating relationship estimated from the longrun model in equation (3.13), θ is the coefficient of the eror correction term, Δ is the different operator and $\mathbf{v_t}$ white noise.

3.4.5 Data and estimation procedures

Empirical study in this chapter uses annual data from 1977 to 2010. Data for FDI, market size, RER, quality of labour force, and infrastructural development are collected from the World Development Indicators CD-ROM (2011). Data for macroeconomic stability, rate of industrialization are obtained from IMF (2012). Data for financial development, and, government finance (fiscal debt), are obtained from the International Financial Statistics, IFS, CD-ROM (2010). Data for trade openness is calculated from the Penn World Tables version 6.2, PWT, (1969-2000) and WDI (2000-2010). Statistics from the National Institute of Statistics (NIS) in Yaounde are used to complete data for FDI, financial development, and public spending from 2004 to 2010.

The method of cointegration is employed in estimating the foreign direct investment equations. This method has gained increasing importance in analyses that describe equilibrium relationships. A necessary condition for integration, however, is that the data series for each variable involved exhibit similar statistical properties. Empirical analysis in this chapter is done in two phases. In

the first phase, the statistical properties of the variables are verified through the unit roots test and in the second phase, the existing relationship is tested for cointegration.

3.4.5.1 Unit roots tests

Generally, if variables in a regression are not stationary and do not co-integrate, then the regression results will be spurious. Since time-series data are being used, this study should naturally begin by testing for stationarity of variables. This requires the testing of the order of integration of the data set by the so-called unit roots tests. A stationary series is said to be integrated of order (d) if it achieves stationarity after being differenced (d) times. Many studies have shown that models with non-stationary variables tend to produce spurious regressions and make the usual test statistics (t-ratios, F, DW, and R^2) unreliable (Granger and Newbold, 1974; Harris and Sollis, 2003 amongst others). Such regressions produce high R^2s and t-ratios that are biased towards rejecting the null hypothesis even when there is actually no relationship between the variables.

A stationary series has a mean, variance and autocorrelation that are constant over time. However, most economic series tend to exhibit non-stationary stochastic processes. If a series is nonstationary, the variances may become infinite and any stochastic shock may not return to a proper mean level. Such a non-stationary series has no error correction representation

A non-stationary series requires differencing to become stationary. The appropriate number of differencing necessary for a time series to become stationary is called the order of integration. Hence, if a time-series, for example, X_t becomes stationary after being differenced d times, X_t is said to be integrated of order d, denoted by $X_t \sim I(d)$. Thus, in line with many other studies, including those of Ghirmay (2004) and Yousif (2002), this study employs the augmented Dickey–Fuller (ADF) and Phillips–Perron (PP) tests.

The essence of conducting two distinct stationarity tests is to ensure that series enter model to be estimated in non-explosive form and mainly to address the issue of tests with low power (Agu and Okechukwu, 2008). In the two tests, if the null hypothesis is being accepted, it means that the series is not stationary, otherwise, the alternative hypothesis of unit roots is accepted. The next

step after testing whether or not the variables are stationary is to test their cointegrating relationship.

3.4.5.2 Cointegration test

The main reason for the popularity of co-integration analysis is that it provides a formal background for testing and estimating short-run and long-run relationships among economic variables.Two cointegration tests are applied in this chapter: the ARDL modeling approach (bounds test of cointegration) and the Engle and Granger two steps test.

A) Autoregressive Distributed Lag (ARDL) bounds testing approach

The autoregressive distributed lag (ARDL) model is not a commonplace in foreign direct investment studies. This can be explained by the fact that the introduction of unit root and cointegration methods, which found that some regressions may be spurious if the time-series properties of variables are not examined, almost dismissed the ARDL model as inappropriate (Zachariadis, 2007). The revival of ARDL methods occurred in the late 1990s with the help of work done by Pesaran, Shin and Smith (2001), and many analysts have recently used it for Granger causality - these include Harvie and Pahlavani (2006), Jarita (2006), Zachariadis (2006, 2007), Long and Samreth (2008), Noula (2012) and so on.

The ARDL bounds testing approach to the analysis of level relationships involve testing whether or not a longrun relationship exists among the variables. Pesaran *et al.* (2001) develop a new approach to the problem of testing the existence of a level relationship between a dependent variable and a set of regressors, when it is not known with certainty whether the underlying regressors are trend- or first-difference stationary. The proposed tests are based on standard F- and t-statistics used to test the significance of the lagged levels of the variables in a univariate equilibrium correction mechanism. Two sets of asymptotic critical values are provided: one when all regressors are purely I(1) and the other if they are all purely I(0). These two sets of critical values provide a band covering all possible classifications of the regressors into purely I(0), purely I(1) or mutually cointegrated.

The use of the bound technique is based on four validations. First, Pesaran *et al.* (2001) advocated the use of the ARDL model for the estimation of level relationships for the following

advantages. Firstly, the ARDL model is applicable irrespective of whether the underlying regressors are stationary I(0) or integrated in the first order I(1). Secondly, it provides two sets of critical bounds in which I(0) represent a lower bound and I(1) an upper bound. If the F-test value of the estimated equation falls outside this bound, then one can conclude and proceed with the co-integration process without knowing whether the underlying variables are I(0), I(1) or fractionally cointegrated. Thirdly, the model is also reliable even for small observations unlike the Engle and Granger (1987) model. Fourthly, the ARDL technique generally provides unbiased estimates of the long-run model and valid t-statistics even when some of the regressors are endogenous (Harris and Sollis, 2003).

Following Pesaran *et al.* (1999, 2001), the bound testing approach to cointegration within an ARDL framework involves the estimation of the following autoregressive distributed lagged model of FDI function[9]:

$$\begin{aligned}\Delta Log(FDI)_t = {} & \beta_0 + \beta_1 Log(FDI)_{t-1} + \beta_2 (MS)_{t-1} + \beta_3 Log(MES)_{t-1} + \beta_4 Log(RER)_{t-1} + \beta_5 (STR)_{t-1} + \\ & \beta_6 Log(FD)_{t-1} + \beta_7 Log(INDR)_{t-1} + \beta_8 Log(OP)_{t-1} + \beta_9 Log(QLF)_{t-1} + \sum_{i=1}^{p=2} \phi_i \Delta Log(FDI)_{t-i} + \sum_{i=0}^{p=2} \alpha_i \Delta (MS)_{t-i} + \\ & \sum_{i=0}^{p=2} \vartheta_i \Delta Log(MES)_{t-i} + \sum_{i=0}^{p=2} \theta_i \Delta Log(RER)_{t-i} + \sum_{i=0}^{p=2} \pi_i \Delta (STR)_{t-i} + \sum_{i=0}^{p=2} \psi_i \Delta Log(FD)_{t-i} + \sum_{i=0}^{p=2} \lambda_i \Delta Log(INDR)_{t-i} + \\ & \sum_{i=0}^{p=2} \gamma_i \Delta Log(OP)_{t-i} + \sum_{i=0}^{p=2} \sigma_i \Delta Log(QLF)_{t-i} + \eta_t \end{aligned} \tag{3.15}$$

Where Δ is first-difference operator and p is the optimal lag length which is 2 for annual series. FDI represents net foreign direct investment, MS is variable for the market size, INFL is variable for inflation as proxy for economic stability. RER, STR, and others variables are as defined earlier.

After estimating Equation (3.15) by OLS method, the Wald F-statistic is computed by imposing restrictions on the estimated long-run coefficients of FDI. The null and alternative hypotheses of are derived as follows:

H_0: $\beta i=0$ (no cointegration relationship)

H_1: $\beta i \neq 0$ (a cointegration relationship exists) where i= 1, 2,..., 9

[9]The VAR model (both the VECM and ARDL versions) are discussed in detail in chapter 6.

To verify these hypotheses, the computed Wald F-statistic value is compared with the critical values tabulated in Table CI (iii) and (iv) of Pesaran *et al.* (2001) and Narayan (2004) as in the appendix. According to these Authors, the lower bound critical values assumed that the explanatory variables x_t are integrated of order zero, or I(0), while the upper bound critical values assumed that x_t are integrated of order one, or I(1). Therefore, if the computed *F*-statistic is smaller than the lower bound value, then the null hypothesis is not rejected and we conclude that there is no long-run relationship between FDI and its determinants. On the other hand, if the computed *F*-statistic is greater than the upper bound value, then FDI and its determinants share a long-run level relationship. On the other hand, if the computed *F*-statistic falls between the lower and upper bound values, then the results are inconclusive (Zachariadis, 2007, Rao *et al.*, 2010).

B) Engel and Granger two steps test of cointegration

According to Engel and Granger, two series are cointegrated when their linear combination is stationary. Cointegration translates the fact that the linear combination does not deviate from its mean value for long even if the series present diverging evolutions. In other words, there exists a stable long-run evolution between the series

Two series X_t and Y_t are co-integrated of the orders d, b respectively for $0 < b \leq d$, if X_t is integrated to the order d and Y_t integrated to the order b, there exist (α, β) such that $Z_t = \alpha X_t + \beta Y_t$ is integrated to the order (d-b) or I(d-b). In practice, we generally limit ourselves to d= b= 1 and in this case, Z_t will be stationary or I(0) and will convey an equilibrium relationship between X_t and Y_t. The Engel and Granger methodology of long-term estimation is carried out in two steps (The Engler-Granger two steps approach).

According to this method, testing cointegration between FDI and its explanatory variables simply requires first, to run an Ordinary Least Squared (OLS) regression and retained the residuals. At the second step, ADF or PP tests is applied on the residual, in order to determine whether or not it is stationary. This test is essentially used in the case of two set of time series variables. Estimates of the residual errors u_t from the cointegrating regression specified in equation 3.13 is obtained as follows:

$$\mu_t = \Omega\mu_{t-1} + v_t \qquad (3.16)$$

The H_0 hypothesis that μ_t has a unit root and therefore is a random walk is tested against H_1 using the ADF and PP test. That is, if in equation (3.16), $\Omega=1$, then the series has a unit root and if $\Omega\neq1$; then μ_t is stationary and the variables are cointegrated. In case the error term possesses unit roots at the level form, it implies that FDI is cointegrated with its determining variables and the ECM of FDI counterpart of the cointegrating regression exists.

Error correction model is estimated by simply reintroducing the lagged value of residual term of the cointegrating equation as one of the explanatory variables. The other variables from the cointegrating regression enter the ECM as a difference or stationary variables depending on the results of unit roots pretesting of the time series in question. That is, the number of times a variable is difference corresponds to the order of the integration of the series as determine by the ADF and PP unit roots test.

Finally, we apply the Breusch-Godfrey Serial Correlation LM Test for serial correlation of successive error terms, the ARCH (Auto-regressive Conditional Heteroscedasticity) test for heteroscedasticity and the Jarque-Bera test for normality of errors to verify if these regressions are in the correct functional form or not.

3.5 Empirical Results and Discussion

After presenting the methodology used in this chapter, it is necessary to estimate the FDI equation in the case of Cameroon. In order to carry out this verification, a linear form of equation is used. The model allows us to verify whether or not, market size and macroeconomic stability play an important role for FDI inflows to the economy of Cameroon. Annual time series data for Cameroon is collected and Engle and Granger cointegration test and ARDL bounds test are used to verify whether these variables are cointegrated or not. The calculations are done using Microsoft excel, Eviews 7 and STATA 10.1 econometric softwares.

In order to carry out a good estimate, we first examined the unit root property of variables, test for cointegration relationships, and then, estimate the longrun regression and the corresponding error correction model.

3.5.1 Results of Unit Roots Tests

Prior to the testing of cointegration, we conducted a test of order of integration for each variable using Augmented Dickey-Fuller (ADF) and Phillip Perron (PP). It is necessary in the Engle and Granger cointegration technique even though the ARDL framework does not require pre-testing variables to be done (Jarita, 2006). The unit root test could convince us whether or not the ARDL model should be used.

The test is performed by comparing the ADF and the PP statistics with the respective Mackinnon critical values provided by the Eviews econometric package. The results of the tests at level form and first difference level for variables under consideration are presented in Table 3.2.

Table 3.2: Results of ADF and PP tests at level form and first difference level

Tests Variables	*Augmented Dickey Fuller(ADF) Test*		*Phillips Perron (PP)Test*		*Decision*
	Level Form	First difference	Level Form	First difference	
Log(FDI)	-2.320	-3.198[b]	-3.714[b]	-7.369[a]	I(1)
Market Size	-3.816[b]	-7.446[a]	-3.199[b]	-8.376[a]	I(0)
Log(MES)	-2.969[c]	-7.090[a]	-2.634[c]	-6.980[a]	I(0)
Log(STR)	-4.245[a]	-5.518[a]	-5.552[a]	-8.551[a]	I(0)
Log(RER)	-2.042	-3.889[a]	-2.255	-5.885[a]	I(1)
Log(OP)	-1.301	-4.154[a]	-1.048	-4.726[a]	I(1)
Log(FISD)	-2.862[c]	-2.323	-3.527[b]	-4.649[a]	I(0)
Growth Rate	-3.903[a]	-7.522[a]	-3.199[a]	-8.451[a]	I(0)
Log(LFQ)	-1.089	-3.588[a]	-1.044	-4.186[a]	I(1)
Log(FD)	-1.277	-3.332[b]	-1.117	-4.279[a]	I(1)
Log(INDR)	-2.514	-4.633[a]	-2.313	-7.103[a]	I(1)

MacKinnon critical values at 1%, 5% and 10% are respectively -3.6496, -2.9558 and -2.6164. ([a]), ([b]) indicate variables significantly stationary at 1 and 5% levels of confidence respectively.

Source: By Author

Results presented in Table 3.2 reveals that all the variables are at least stationary at the first difference level. Rejection of the unit root hypothesis for the first difference of these variables suggests that we are dealing with integrated processes of the first order, that is, I(1), after

applying the different stationary tests (ADF, PP) at a confidence interval of 1% and 5%. The results show that there is a mixture of I(1) and I(0) of underlying regressors and therefore, the ARDL testing could be proceeded. The risk of using the original Engle-Granger formulation is equally minimal.

3.5.2 Results of Cointegration Regression

The estimation of the equations above is done using the Engle and Granger method. This method is carried out in two phases. First of all, we estimate the long-run relationships using ordinary least squares, and secondly, we verify the stationarity of the error terms from the estimations, using the ADF and the PP tests.

An alternative approach is by using bound test to cointegration analysis, where if the Wald F-statistic is greater than the upper bound, the null hypothesis (H_0) is clearly rejected and we conclude that a long-term relationship exists among the tested variables. If the F-statistic is smaller than the lower bound, then the null hypothesis cannot be rejected and thus, there no longrun relationship. If the Wald statistic falls between the two bounds, then the result is inconclusive (Zachariadis, 2007).

The results of ARDL (equation 3.15) with associated critical values for the lower and upper bounds are reported in Table 3.3 (see detail of the result in appendix 8b)

Table 3.3: Bounds test for cointegration analysis of FDI model

Wald F-Statistics	*k*	*Significance level*	*Bound Critical values of Pesaran et al. (2001)*		*Bound Critical values of Narayan (2004)*	
			Lower Bound Value I(0)	Upper Bound Value I(1)	Lower Bound Value I(0)	Upper Bound Value I(1)
3.72	*8*	1%	**2.79**	4.10	**3.64**	4.55
		5%	**2.48**	**3.70**	**2.66**	3.97
		10%	**1.95**	**3.06**	**2.22**	**3.39**

Computed F-statistic '3.72' is significant at 5% and 10% level when compared to the Critical Values from Pesaran and Shin (2001) and Narayan (2004) respectively. The result is inconclusive at 1% in both cases

***Source*:** computed by Author

As suggested by Pesaran and Shin (1999) and Narayan (2004), since the observations are annual, we choose 2 as the maximum order of lags in the ARDL. The calculated Wald F-statistics for the cointegration test is displayed in Table 3.3. The critical values suggested by Pesaran *et al.* (2001) based on unrestricted intercept and no trend, and those of Narayan (2004) are reported together in the same table.

The calculated Wald F-statistic (3.72) is higher than the upper bound critical value at 5 per cent of Pesaran *et al.* (2001) and 10 percent of Narayan (2004). This implies that the null hypothesis of no cointegration cannot be accepted at 5 percent level and 10 percent based on Pesaran *et al.* (2001) and Narayan (2004) critical bounds respectively, indicating that longrun cointegration relationship exists among the variables.

Following Engle and Granger cointegration technique, the results of longrun cointegrating relationship specified in equation (3.13) is presented in Table (3.4) including the results of unit roots test on the error term.

Table 3.4: Cointegrating Regression equation of FDI model in Cameroon

Dependent Variable: Log of Foreign Direct Investment (LogFDI)$_t$ **Method: Ordinary Least Squares**			
Independent variables		**Coefficient**	**Std Error**
Constant		-5.330 (-0.821)	6.490
Market Size: (MS)$_t$		0.092* (2.161)	0.043
Log of macroeconomic stability: (LogMES)$_t$		-0.540** (-2.462)	0.219
Log of real exchange rate: (LogRER)$_t$		1.315 (1.241)	1.060
Log of infrastructural development: (LogSTR)$_t$		-0.362* (-1.982)	0.183
Log of financial development: (LogFD)$_t$		0.446 (0.297)	1.500
Log of the rate of industrialisation: (LogINDR)$_t$		-3.592** (-2.475)	1.451
Log of the degree of trade openness: (LogOP)$_t$		2.620* (2.088)	1.255
Log of the quality of labour force: (LogQLF)$_t$		0.189 (0.120)	1.573
Export processing zone: (EPZ)$_t$		-2.100 (-1.314)	1.598
Unit root test on the error correction term (ECT)	Phillips Perron statistics	**-6.600*** **	
R-squared		**0.703**	
Adj. R-squared		**0.481**	
Durbin-Watson stat		**2.634**	
F-statistic		**3.159** *(p= 0.033)*	
Jarque-Bera normality test		**1.511** *(p= 0.469)*	
ARCH test for heteroscedasticity		**0.011** *(p= 0.920)*	
Breusch-Godfrey Serial Correlation LM Test		**0.531** *(p= 0.262)*	

Note: ***, **, * indicate significance at the 1, 5, and 10% levels, respectively. Values in parentheses represent the calculated t-statistics. P-values represent the respective probabilities

Source: By Author

3.5.3 Results of Unit roots tests on the error terms and bound testing

The results of unit roots test on residual of FDI model are included in Table (3.3). The intention of these tests is to verify if actually there exists a long run relationship between the variables or not. From the results, we realized that ADF and PP calculated values are less than respective critical values at their level forms. Hence, we reject the null hypothesis of unit root and conclude for the existence of a long run relationship between the variables. The results of bound tests were significant at 1 percent level when using the critical values of both Pesaran and Shin (1999) and Narayan (2004) to further support the Engle and Granger cointegration results.

The result of unit roots of error term is negative and possesses a unit roots at the level form, indicating that the Error Correction Mechanism counterparts of the cointegrating regression actually exists.

3.5.4 Results of Error Correction Model for FDI

Given that, the coefficient of the error term of longrun cointegrating model incorporated in Table (3.4) is significant and negative, we proceed with the estimation of ECM presentation counterparts of the cointegration regression as presented on Table 3.5.

The robustness of the two models (included in Tables 3.4 and 3.5) is verified using several diagnostic tests. There is no evidence of serial correlation of the error terms as the probability of Breusch-Godfrey LM test is greater than 5 percent. Durbin-Watson statistic indicates the absent of first-order autocorrelation in the two regressions as it coefficient is greater than 1.5. Both models pass the Jarque-Bera normality test ($p>0.05$) suggesting that the errors are normally distributed. Results of ARCH LM testify the presence of homoscedasticity implying that the residuals are dispersed randomly throughout the range of the estimated dependent variable.

These tests therefore disclosed that the models possessed the necessary econometric properties. It has a correct functional form and the models' residuals are serially uncorrelated, normally distributed and homoskedastic.

Table 3.5: Error Correction Mechanism for FDI in Cameroon

Dependent Variable: Change in the logarithm of FDI ($\Delta LogFDI_t$)		
Independent variables	**Coefficient**	**Std Errors**
C	1.465 (2.027)	0.723
$(Market\ Size)_t$	0.158* (2.634)	0.060
$(LogMES)_t$	-0.390 (-1.633)	0.239
$\Delta(LogRER)_t$	-1.628 (-0.978)	1.665
$LogSTR_t$	-0.744* (-2.302)	0.323
$\Delta(LogFD)_t$	-3.921 (-1.135)	3.454
$\Delta(LogINDR)_t$	0.096 (0.043)	2.235
$\Delta\ (LogOP)_t$	7.999** (2.842)	2.815
$\Delta\ (LogQLF)_t$	-11.033* (-2.142)	5.152
Error correction term (ECT_{t-1})	-2.872*** (-4.493)	0.639
R-squared	**0.904**	
Adjusted R-squared	**0.689**	
S.E. of regression	**0.842**	
Durbin-Watson stat	**1.857**	
F-statistic	**4.206** (p= 0.089)	
Jarque-Bera normality test	**0.074** (p= 0.964)	
ARCH test for heteroscedasticity	**0.997** (p= 0.357)	
Breusch-Godfrey LM Test:	**1.089** (p= 0.478)	
Ramsey RESET Test	**2.298** (p= 0.227)	

Note: ***, **, * indicate significance at the 1, 5, and 10% levels, respectively. Values in parentheses represent the calculated t-statistics. P-values represent the respective probabilities

Source: By Author

3.5.5 Results of causality test

Short run causality test consists of rejecting the null hypothesis (H_o) of no causality when the probability of the F-Statistics is less than 10 percent.

Table 3.6: Results of short run causality test between Market Sizes (MS), Economic Stability (MES), and, Foreign Direct Investment (FDI)

Null Hypothesis:	**F-Statistic**	**Probability**	**Decision**
MS => FDI	2.603	0.093	Reject Ho
FDI => MS	2.563	0.096	Reject Ho
MES => FDI	0.787	0.465	Accept Ho
FDI => MES	0.003	0.997	Accept Ho

Source: Author's calculations

The results reports evidence of bidirectional causality between market size and FDI as the null hypothesis of no causality is rejected. The Granger causality from macroeconomic stability to FDI is not probable within the acceptable confidence level of 10 percent.

Long run causality test is conducted by verifying whether the coefficient of the error correction term in the ECM specified in equation (3.14) is significant or not (Johansen and Juselius causality test). From the result of the ECM reported in Table (3.5), it is noticed that the coefficient of the error correction term is negative as requires and is highly significant. This implies that both market size, economic stability variables cause FDI inflows to Cameroon in the long run. The coefficient of the ECT equally indicates that in the long run there exists a correction mechanism that establishes over 287 percent of the disequilibrium of financial development in the subsequent period.

3.6 Interpretation of Empirical Results

The coefficient estimates of host economy's market size and that of macroeconomic stability variable allow us to verify their actual effects on FDI inflows to Cameroon. This investigation is tested by running a cointegration regression and the corresponding ECM counterparts of the basic

model. Empirical results of the cointegration regressions are reported in Table 3.4 and those of the ECM counterparts are estimated in Table 3.5.

The general results of FDI model is not quite satisfactory as the adjusted coefficients of determination show that the variables included succeeded in explaining only 48.1 percent of the variations in FDI in the longrun. F-statistics is significant at 1 percent. The Phillips Perron test on the error term is equally significant in both estimations, implying that the variables used in the regressions are cointegrated despite being largely non-stationary. The ECM too is globally significant with all the exogenous variables put together capable of explaining 68.9 percent of evolution in FDI inflows to Cameroon.

The coefficients of market size and economic stability variables like those of other exogenous regressors of FDI displayed the expected signs in both regressions with few exceptions. Market size measured by annual growth of per capita GDP has a positive and significant effect on the FDI inflows in Cameroon in the longrun. The implication of this outcome is that market size of the host economy is an important factor for market-seeking FDI. The significance of this variable is not as strong as expected in the basic regression model simply because local market size does not play any major role for resource-seeking or vertical FDI (Bamou and Khan, 2006). The output of resource-seeking foreign firms is exported back to the parent company and so the host market is of very little interest.

The effect of macroeconomic instability captured by the rate of inflation (INFL) on FDI is negative and insignificant in the short run dynamics model. The variable is however significant at 10 percent level in the cointegration regression model. Macroeconomic stability is therefore an important determinant of FDI inflows to Cameroon especially in the longrun. It affects international investors' expectations about their foreign investment profits. Effect of inflation is high unpredictable, which discourages investment of all types. High rate of inflation is equally perceived as government malfunctioning that can result in government policies that hurt capital holders. In addition, high inflation is tied to exchange rate volatility, political instability and other undesirable factors which tend to deter foreign investors. Therefore the negative coefficient of macroeconomic instability on the FDI estimations in Cameroon is not surprising.

The level of infrastructure development (measure in terms of kilowatts of electricity production) and the rate of industrialization appear to be other important significant determinants of FDI inflows to Cameroon although they do not bear the expected positive signs. The effect of real exchange rate on FDI is negative only in the short run and insignificant. This implies that foreign investors are attracted in the short run when the prices of tradables are increasing rather than those of non tradables. In both models, trade openness variable bears the expected positive signs and is highly significant within the period under study in attracting foreign capital into the economy of Cameroon.

The quality of human capital as measured by the ratio of the population enrolled in secondary education also has a positive but insignificant force in attracting FDI in Cameroon in the longrun. The variable is significant in the error correction model but does not bear the expected positive sign. This result suggests that, increase in the quality of human capital in Cameroon is attractive to foreign investors only in the longrun and not in the short run. The development of domestic financial sector has a positive but insignificant force in attracting FDI inflows to Cameroon. The variable used to capture the influence of the export-processing zone (EPZ) on FDI does not have the right sign and is equally insignificant.

The result of this study tied with those of Nunnenkamp and Spatz (2002) and Khan and Bamou (2006) and others that the level of schooling, openness of the economy, growth rate of per capital income used in the present study to captured market size are important in attacting FDI inflows.

3.7 Conclusion

The objective of this chapter is to shed light on the effect of host market size variable and macroeconomic stability factor on FDI inflows to Cameroon. This is undertaken by estimating an econometric model based on time series Cameroon's data spanning from 1977 to 2010.

The trend of FDI, market size and economic stability variables has been briefly examined in Cameroon. It was noticed that net FDI inflows to Cameroon increases gradually during the post-independence period, followed by a surge in FDI during the oil boom, especially in the oil sector, like in the other sectors of the economy. The severe economic crisis that plagued the country between 1986 and 1993 saw a drastic fall in FDI (net FDI was negative throughout this period).

This resulted from a decline in the level of economic activity, failed reform attempts and political uncertainty. After the CFAF devaluation in 1994 and the successful implementation of some economic reforms, FDI was again on the rise up to 2007. From then, the net inflow began to fall to a very negligible level in 2010 (NIS, 2011).

The regulatory and institutional framework for investment in Cameroon from independence to 2002 has been provided by the Investment Code. Three Investment Codes and an Investment Charter have been promulgated into law, each successive one trying to address the regulatory and institutional constraints facing investment and providing incentives to investors. Incentives offered have been in the form of tax holidays and custom duty exemptions, especially on imported capital equipment. The regulatory framework for investment in Cameroon has never been explicitly targeted at foreign investors. Rules are set for all types of investors. The export processing zone has not recorded any significant success in attracting FDI despite the heavy fiscal cost bore by the government on it. Similar result was obtained in Khan and Bamou (2006).

The regression analysis shows that the local market size measure in terms of GDP per capital plays a significant role in attracting FDI to Cameroon. This effect is found to be stronger in the short run with greater magnitude than in the long run. Macroeconomic instability factor taken as the rate of inflation in domestic economy negatively and significantly influences the inflow of FDI in Cameroon especially in the long run. This implies that a stable economic environment has a positive and significant force in attracting foreign direct investment inflow into the economy.

The level of infrastructural development, rate of industrialization, openness of the economy, human capital development are also identified as some other important determinants of FDI. The level of financial development, real exchange rate, and, the creation of an export-processing zone do not have significant influence on FDI in Cameroon during the period under study.

Based on our results, a number of policy suggestions aimed at making Cameroon a more attractive FDI destination have come out of this chapter. Cameroon is strategically well located among the CEMAC countries and has the most developed industrial base within the sub region. She stands to benefit more in terms of FDI inflows by encouraging economic integration, promoting economic growth and stimulating income generating activities as a means of increasing the GDP per capita of the citizens (local market size).

Controlling the general price levels, exchange rate violability, and ensuring political stability with the aim of maintaining macroeconomic stability shall create a more conducive or investment-friendly environment capable of attracting reasonable FDI inflow to the economy of Cameroon. This could be complemented with opening up the country through trade, investing in education and, preventing RER overvaluation in the shortrun, and increasing the efficiency of financial sector in granting credit so as to render Cameroon more competitive in attracting FDI.

Chapter Four:

DETERMINANTS OF FINANCIAL DEVELOPMENT IN CAMEROON

4.1 Introduction

Economists' understanding of the role of financial system as a driver of economic growth has evolved considerably in recent years. The role of finance was neglected in early literature on development. Amongst the pioneer studies on whether finance exerts a causal influence on growth, Bagehot (1873) found that financial markets facilitate the accumulation of capital and manage risk inherent in investment projects and industries. Financial services stimulate innovation and growth (Schumpeter, 1911), respond to the needs of the real economy (Robinson, 1952) and equally play a crucial role in the process of economic development (North, 1981; Engerman and Sokoloff, 1996; Ergungor, 2003). In general, financial functions lower transaction costs between savers and borrowers and thus contribute to the process of capital accumulation, technological innovations and hence economic growth (King and Levine, 1993)

The relationship between financial development and economic growth was extensively analysed more than three decades ago by Goldsmith (1969), McKinnon (1973), Shaw (1973) and others. They found strong and positive correlations between the level of financial market development and the rate of economic growth. More comprehensive empirical research was undertaken by King and Levine (1993) who confirmed a very strong relationship between each of their four financial development indicators and economic growth.

Subsequent empirical work by Jayaratne and Strahan (1996), Levine and Zervos (1998), Habibur (2007) equally confirmed the finance- growth significant relation. At the micro-economic level, Demirguc-Kunt and Maksimovic (1998) and Rajan and Zingales (1998) reported that financial institutions have been crucial for firm and industrial expansion. However, some studies do not still confirm the beneficial economic effect of financial development, such as Jappelli and Pagano (1994), Tche (1997), and Ram (1999) among others. Most of these studies employed the Bivariate or multivariate VAR model, Granger causality test and or co-integration/Error Correction Model. Levine *et al.* (2000) used Generalized Method of Moments dynamic panel estimators and the results tied with the fact that financial development is a good predictor of

economic growth. Similar results were obtained by Beck, Levine and Loayza (1999), and Xu (2000).

Unlike the supply-leading hypothesis (Patrick, 1966; McKinnon, 1973; Jung, 1986; King and Levine, 1993; Xu, 2000; Levine *et al.*, 2000; Ghirmay, 2004) which posits a causal relationship from financial development to economic growth, demand-leading hypothesis postulates a unidirectional causality instead from economic growth to financial development (Gurley and Shaw, 1967; Goldsmith, 1969; Neusser and Kugler, 1996; Odhiambo, 2004; Ang and Mckibbin, 2005; Erdal, Okan, and Beblye, 2007).

Studies focusing exclusively on developing countries such as Demetriades and Hussein (1996), Luintel and Khan (1999), Christopoulos and Efthymios (2004) and that of Odhiambo (2004, 2007) were in line with the demand-following hypothesis that, a significant unidirectional causality instead runs from growth to finance. Odedokun (1996) however found mixed results. Jung (1986)[10]concluded from the experience of fifty six countries between 1950 and 1980 using time series analysis that finance causes growth more frequently in developing countries and growth causes finance mostly in industrialized countries. The result is however country specific and tend to vary with the proxies used in measuring financial development (Jung, 1986, Ram, 1999, Yousif, 2002).

Recently, the attention of most researchers has extended from finance-growth nexus to the examination of other important correlates of financial development. In this regard, openness to external trade is widely noted to boost the level of financial development (Do and Levchenko, 2004; Huang and Temple, 2005), and financial liberalization[11] equally fosters financial development (World Bank; 1989, Tabi, Njong and Neba, 2011). The level of gross investment significantly contributes to financial development among other factors such as per capita income, literacy rates, inflation, and cultural or religious forces (Seetanah *et al.*, 2011).

Majority of studies have established a positive link between financial development and economic growth. A bulk of this research is concentrated mainly on developed countries with scarce

[10]He used two measures of financial development: The ratio of M2/GDP, The ratio of currency to M1, and measure growth rate in terms of Real per capita GDP

[11] Seetanah, Padachi, Hosany and Binesh (2011) identified trade openness and financial liberalization as two most important determinants of financial development in Mauritius.

amount of work based exclusively on developing countries. There are very few studies on the finance-growth debates devoted exclusively on Cameroon's data (Tabi, Njong and Neba, 2011). For studies on causes of financial development, we have not come across any rigorous research on the determinants of financial development using Cameroon data.

The economy of Cameroon has witnessed a remarkable evolution in its financial sector just as the country itself has evolved in its economic and political structure. The traditional banking sector, like the non-banking establishments has experienced dynamic changes during the past decades driven by advances in information and communications technology and widespread reductions in international barriers to trade and investment that have facilitated the movement of money into a global activity.

The financial market of Cameroon as of 2010 comprised of eleven commercial banks, eleven non-banking financial establishments, over 1000micro-finance institutions[12] and an increasing number of foreign exchange bureaus. In spite of this large number, the granting of credit, excluding bad loans, is far below the minimum annual rate of 30 percent needed to satisfy the country's financing requirements (BEAC, 2010). The financing deficit of the economy alongside recent excess liquidity reported in the banking system is a call for concern.

Based on the IIMF (2010) data for Cameroon, the ratio of private credit to GDP used as a proxy for financial development rose from the average of 20.03 percent in the 1970s to 27.1 percent in the 1980s and later fell to 12.4 percent in the 1990s. The ratio further deteriorated to barely 9.4 percent on average between 2000 and 2010. Investment rate with similar trend except for the last decade rose from 20.4 percent in the 1970s to the average of 24.62 percent in the 1980s. The rate fell sharply to barely 16.8 percent on average in the 1990s and rose negligibly by 0.7 percent in the subsequent decade. The low ratio of domestic credit to GDP partly motivates us to investigate the various determinants of financial development measured in terms of credit to the private sector. In doing this, emphasis is placed on the role of financial liberalisation as Cameroon has a rich history of financial reforms, a country that has witnessed both financial repression and financial liberalisation policies.

[12]COBAC survey of the year 2000 reviewed that the micro-finance institutions represented about 7% of the potential market and it granted credits representing only 4.3% of total loans made by the banking sector in spite of their large number

Coupled with this situation, the world economy has recently witnessed another severe financial crisis, during the period 2007-2009 (Huang, 2010 and Bruno, 2010), the issues surrounding the emergence, development of financial markets and finance-growth nexus is becoming an increasingly significant area for research and debate worldwide. As noticed earlier, a good number of studies in this domain concentrate on finance-growth links in developed countries with controversial results. In addition, the recent worldwide financial crisis is said to have greatly affected the financial sector of developing countries than those of developed nations who provoked the crises ((Bruno, 2010 and Bernanke, 2010). Cameroon's financial market was not spared by the crisis as private credit ratio fell to 9.1 percent in 2009 (below the relatively very low period average of 9.4%) before picked up slowly in the subsequent years.

In the face of the low private credit to GDP ratio taken as an indicator of financial development, one is faced with a key question: what major factors influence the level of financial development of a developing country like Cameroon?

The objective of this chapter is therefore to identify the main determinants of financial development in Cameroon. The following research hypotheses emanate from this objective, assuming other things constant:

- The level of investment is complementary to the rate of financial development.
- Financial liberalization correlates more with financial development relative to other regressors.

The remainder of the chapter is organized as follows: Section 2 gives an overview of Cameroon's financial development; in Section 3, we review the relevant literature before concentrating on the empirical methodology in Section 4. Section 5 presents and discusses the empirical results, followed by the conclusion in Section 6.

4.2 An overview of financial development in Cameroon

The financial sector of Cameroon during the post-independence period (1960 to 1985) developed under the umbrella of monetary and regulatory policies aimed at supporting the state-orchestrated development strategies. The financial sector became an instrument of planned industrialization policies and operated under a framework characterized by controlled interest rates, directed credit

programs, high reserve requirements and other restrictions on financial intermediation as well as restricted entry into the market (Tabi, Njong and Neba, 2011). This situation has been termed financial repression by the proponents of financial liberalization. All banks were owned by the state and credits were directed to sectors deemed important.

By 1987, due to the down turn in the global economy, the demand and the prices of the main exports of Cameroon declined. At this time also, the real exchange rate of the franc appreciated sharply, while the US dollar depreciated by 40 percent against the CFA and the terms of trade deteriorated by 47 percent. Oil output also started declining (Amin, 2002). All these let to a drastic collapse of the economy after practically two decades of good performance. The decline in GDP was sudden and drastic from 8 percent to -5 percent within the space of one year (Amin, 2002).

The financial sector was not spared by the crisis in the real sector. The collapse of the real sector made companies not to meet their financial obligations. This coupled with other factors such as the incompetence of managers, poor management techniques, competition from the informal financial sector, and state intervention let to serious crises in this sector (Wamba, 2001). Many banks went bankrupt and others became illiquid and unable to meet the withdrawals of depositors. Under the structural adjustment programs, the restructuring of the financial sector was undertaken in which some banks were liquidated (Tabi, Njong and Achamoh, 2012).

There was also a change in monetary and financial policies with the liberalization of financial markets in 1990. A new banking regulatory agency (COBAC) was also established. As such, there was the deregulation of interest rates, the removal of directed credit schemes, and the privatisation of banks - the creation of the money market - the liberalization of the capital account and the creation of the Douala Stock Exchange that has remained in an embryo state. It was believed that such a system could better support an economy that will henceforth be regulated by market forces. These reforms marked the end of a Keynesian inspired plannified economy and repressed financial system and the beginning of a classical market based system. With all the above reforms, the economy regained the path of economic growth and the banking sector regained its liquidity and soundness.

Regarding the spread and evolution of financial institutions, it should be noted that, Cameroon is a member of the Central African Economic and Monetary Community (CEMAC), which is composed of six member countries[13]. The common independent central bank in the region is the Bank of Central African States (BEAC)[14] while the banking Commission (COBAC), harmonizes and controls banking activities. Cameroon has a preponderance number of banks in the CEMAC region[15] even though the granting of credit to the private sector is below 25 percent of GDP on average.

The capital markets sector is still in its infancy. The main regulator is the Financial Markets Committee (CMF), which is a regional body that was legally established in 1999 with the aim of protecting investors' savings and monitoring the financial markets of the Franc zone. The CMF has sole authority to approve securities for listing on the exchange. As is the case for the West Africa Franc zone which has a common stock exchange (the Bourse Régionale des Valeurs Moblières), the Central African Region's initial plans to establish a common stock exchange were temporarily shelved, as no agreement could be reached between the member countries regarding a host country. Cameroon decided to create its own exchange, the Douala Stock Exchange which was inaugurated in April 2003. It is not yet very operational as no company is yet listed. It is so far of no practical significance for businessmen and investors (BEAC, 2005).

Still on the non-banking sector, the insurance sector in the country is regulated and supervised by a regional body- the Inter-professional Committee of the Insurance Market (CIMA),[16] established on July 10, 1992 in Yaoundé. The regulatory body of the CIMA is the Regional Commission of Insurance Control whereas the Council of Ministers is the supreme body. Despite a recent strong growth in the life insurance segment, the insurance industry in Cameroon is dominated by the non-life insurance sector

[13]Cameroon, Central African Republic,Chad, Republic of Congo, Equatorial Guinea and Gabon

[14] BEAC formulatesand implements the monetary policy of its member countries, and also preserves the stability of the common currency the CFA Franc (*Franc de la Cooperation Financiére en Afrique*)

[15]For instance, Cameroon had 10 out of 29 banks operating in the CEMAC regionas of February 2007 compared to 3 in Central African Republic, 5 in Chad, 4 in Congo, 2 in Equatorial Guinea and 5 in Gabon.

[16]Countries included in CIMA are: Benin, Burkina Faso, Cameroon, Central Africa, the Comoros, Ivory Coast, Gabon, Equatorial Guinea, Guinea Bissau, Mali, Niger, Senegal, Chad and Togo.

Regarding the fixed income market (Government securities), Cameroon does not issue treasury bills. However, in 2007 the authorities established the legal framework for issuing both treasury bills and treasury bonds. The existing zero-coupon bonds are restructured parastatal and government debt originating from the restructuring of the banking sector in 1995/1996, whereby the government converted debt from parastatal entities into bonds with tenors over 30 years (BEAC, 2010). Still in the non-banking sector, the clearing house and at the same time the Autonomous Sinking Fund in charge of managing the debt of Cameroon is the *Caisse Autonome d'Amortissement* (CAA), meanwhile *Société Générale des Banques du Cameroun* is the settlement bank. The non-banking sector of the Cameroon's financial market is generally underdeveloped.

Cameroon's financial market comprises of the multinational central bank at the apex, commercial banks, public and semi-public financial institutions. In the early 1970s, there existed three State financial establishments (Cameroon Development Bank- CBD, National Investment Corporation-SNI and the Funds for Rural Development- FONADER), three private (*Le Société Camerounaise d'Equipement-* SCE, *Société Camerounaise de Credit Automobile-* SOCCA, and Taw International Leasing- TIL) and, one foreign financial institution (the Central Funds for Economic Corporation- CFEC). The Central Bank by then was the Central Bank for Equatorial Africa (CBEA) together with six commercial banks: Banque Internationale pour L'Afrique Occidentale Cameroun (BIAOC); Banque International pour le Commerce et Industries du Cameroun (BICIC); Cameroon bank (CB); Société Camerounaise de Banque (SCB); Société Générale de Banque au Cameroun (SGBC); Standard Bank of West Africa (SBWA).

To reinforce the strength and performance of the financial institution, BEAC was established with a monetary committee to replace CBEA following the convention signed at Brazzaville (Congo) on 22nd november1972 by Cameroon, Gabon, Congo, RCA and Chad. The number and structure of commercial banks remained the same since 1970 except for the cessation of activities by standard bank of West Africa -SBWA on the 30th June 1974 (Tabi and Nzongang, 2006). According to the National Credit Council report (2000), the network of banks was enriched in 1980 with two new banks; Chase Bank Cameroon (CBC) and Banque de Paris et des Pays-Bas Cameroun (BPPC).

The upsurge of the economic crisis by the mid-1980s aggravated the numerous financial,

institutional and structural bottlenecks of the Cameroon's financial system. Consequently, a great number of banks especially those with foreign equity holdings withdrew from Cameroon and some local subsidiary were sold. The crisis adversely affected conditions of exploiting credit establishments and led to the liquidation and acquisition of many banks between 1989 and 1992[17](Tabi and Zongang, 2006). The banking commission for central Africa (COBAC) was established in 1990 to replace the national banks and financial establishment control (NBFEC) in the then UDEAC zone acting as a regional body in order to strengthen control and regulation within the financial system.

The second half of the 1990s was marked with encouraging results in banking performance. Majority of the banks registered an upturn in their activities. The banking institutions regained their liquidity and profitability after many years of hardships. Interestingly, the encouraging performances of the banking institutions though coupled with other factors motivated the entry of four new banks into the Cameroonian financial market. These banks included commercial bank of Cameroon (CBC), Citibank Cameroon, Union Bank of Cameroon (UBC) and ECOBANK. The resulting number of banks rose from six recorded in 1998 to eleven by 2008. These include: BICEC, SGBC, SCB-CLC, SCBC, AFRILAND BANK, AMITY Bank, CBC, CITIBANK, UNION Bank, ECOBANK and NFCC arranged according to general volume of activity (National Credit Council, 2008).

4.3 Review of Literature

According to most modern development economists, there is a need for sound financial systems in developing countries so that the efficiency of credit allocation could be improved. There are considerably different views on how this should be approached. Indeed, the role of financial markets in economic development has been the subject of debate in the academic literature for decades. According to Aryeetey (1995), the correlation between financial market development and economic development can be clarified by tracing the McKinnon-Shaw, the structuralists and the imperfect information schools of thought.

[17]This included banking institutrions such as Merchant bank, National development bank and "Banque Camerounaise". Particularly, BIAOC, Chase Bank Cameroon SA and BCCC SA, the First Investment Bank (FIB), BM-BIAO and Credit Agricole were stroke off before 1997.

Bagehot (1873) was one of the earliest economists to write on the nature of the relationship between financial systems and economic growth and the issue has evolved significant over time. He defined two primary roles of financial markets: as institutions that facilitate the accumulation of capital and one which manage risk inherent in particular investment projects and industries. To him, finance played an important role in the industrialization of England through facilitating the accumulation of capital for large works as he ascertained that the industrial power of a country is the ability of its financial markets to mobilize savings to finance major infrastructural works.

Several prominent economists have since then acknowledged that financial systems were a hallmark of an advanced economy, but argued that they did not in themselves contribute to growth. Many empirical studies have been carried out to verify the role of finance in economic growth. A bulk of these studies find a positive and significant role of finance in determining growth, some find the relationship to be bidirectional and others find it to be country specific. Schumpeter (1911) argued that the services provided by financial intermediaries stimulate innovation and economic growth. Robinson (1952) maintained that financial systems emerge in a passive way that responds to the needs of the real economy, that is, where enterprise leads, finance follows.

Large empirical literature has evolved since the work of Schumpeter (1911) to test the effect of growth and foreign direct investment on financial development. Goldsmith (1969) assess whether finance exerts a causal influence on growth between 1860 and 1963 using data of 35 countries. Capturing financial development as the value of financial intermediary assets divided by GNP, the author found that, financial intermediary size relative to the size of the economy rises as countries develop. He equally reported a positive correlation existing between financial development and economic development. The study however, fails to systematically control for other factors influencing growth and the chosen measure of financial development was questionable.

Fry (1993) studies the impact of the availability of private sector domestic credit on investment in 14 Asian countries during the period 1962-1983. Result of the study shows that the private sector domestic credit variable exerts a significant and positive influence on the investment rate. Early empirical research appears to confirm that economic growth and financial development occur in tandem, with no compelling evidence of a causal relationship. To further strengthen the finance-

growth relations, the 19th Century British Prime Minister- *William Gladstone*, once said "Finance is, as it were, the stomach of the country, from which all the other organs take their tone." A general acceptance of this view over the 1950s to 1970s helps explain why the role of the financial sector was essentially absent from the early literature on development. Academics and policy makers in this period believed that finance emerges in an economy only after a country reaches a certain stage of development.

King and Levine (1993) examine the relationship between financial development and economic growth for 77 countries over the period 1960-89. The results of the study reveal that real economic growth is positively correlated with indicators of financial development such as M2/GDP, the size of the formal sector relative to GDP, percentage of credit to the private sector and the importance of commercial banks relative to the central bank. In the same vein, DeGregorio and Gudotti (1995) investigate the relationship between the degree of financial development and long-run economic growth using private credit ratio as the proxy for financial development. In the case of Latin American countries the impact of financial liberalization is negative. It hypothesized that the reason for this is the radical and comprehensive liberalization program.

Demetriades and Hussein (1996) found using cointegration analysis that the relationship between finance and growth is bidirectional and that this relationship is country specific and that causality exhibited considerable variation across countries.Similar results were obtained by Arestis and Demetriades (1997), Luintel and Khan (1999) using VAR estimations. Levine (1997) showed that countries differ in their financial structures and this implies different outcomes on their real sectors. It is therefore necessary to carryout country specific studies in order to relate the findings to policy designs within specific cases. Rajan and Zingales (1998) show how the financing constraints for industries that rely heavily on external finance are mitigated by financial development and further explains why in countries where financial systems are better developed, industries and firms grow faster than otherwise.

LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1998) collected and summarized information on the legal systems of forty-nine countries. Levine (1998) has examined the relationship between legal systems and banking-sector development to complement LaPorta *et al.* (1998). He equally examined whether the exogenous component of banking development, the component

defined by the legal system, is positively associated with economic development in a cross-section of countries over the 1976-1993 period. King and Levine (1993) show that the level of financial development in 1960 is a good predictor of growth over the next thirty years.

Recent studies strongly support the finance led growth hypothesis by identifying the finance sector as an important source of economic growth. Xu (2000) found evidence for the finance-led growth hypothesis using multivariate VAR. Calderon and Liu (2003) agree with Xu, after conducting Geweke decomposition tests on pooled data of 109 countries and conclude that finance generally leads growth despite some evidence of bidirectional Granger causality. Christopoulos and Efthymios (2004) applied panel unit root and Cointegration tests, threshold Cointegration test, and Panel VECM to find support for unidirectional causality from finance to growth.

A large number of studies find a positive relationship and a causality running from growth to financial development (Ang and Mckibbin 2005; Erdal, Okan and Beblye, 2007). Others however find a positive and significant relationship between finance and growth and a unidirectional causality running from finance to growth (Jung, 1986; Xu, 2000; Ghirmay, 2004; Habibur, 2007). Huybens and Smith (1999) theoretically and Boyd *et al.* (2001) empirically investigate the effects of inflation on financial development and conclude that economies with higher inflation rates are likely to have smaller, less active, and less efficient banks and equity markets. Huang (2005) empirically investigates the existence and direction of causality between private investment and financial development on a panel data set of 43 developing countries over the period 1970-1998. He shows positive causal effects going in both directions. Huang and Temple (2005) use the cross-country and time-series variation in openness and financial development, finding a positive effect of increases in goods market openness on financial development.

Modern economists have started discovering the unbeatable role of finance in growth and are incorporating it in both literature and empirical studies. Based on the relationship between banking development and economic grow, Ergungor (2003) noted that the mainstream economists are coming to understand that, the banking sector is not a "hand maiden" of growth as it was viewed some thirty years ago, but that a sound, well-functioning financial sector with efficient institutions is a significant determinant of an economy's long term growth prospects.

Banking services facilitate economic exchanges by providing among others the means to clear transactions (Ndikumana, 2000).

Tche (1997) investigated the relationship between finance and growth in Cameroon by taking side with the Post- Keynesian view. He estimates a demand for money and real output model and finds no evidence in support of the relationship. Instead, the results indicate a negative relationship between real interest rate and the demand for money which is consistent with the post –Keynesian view of finance-growth nexus. This study however was carried out just a few years after the 1990 reforms and so the financial sector was still suffering from the crisis of the late 1980s. Tabi, Njong and Neba (2011) used two measures of financial development[18] and found that financial development positively affects economic growth in the longrun in Cameroon from 1970 to 2005. They used the cointegration techniques and did not however examine the other determinants of financial development in Cameroon.

Exploring what determines financial development has become an increasingly significant research topic in recent years. See, for instance LaPorta *et al.* (1997, 1998), Beck *et al.* (2003), Rajan and Zingales (2003), and, Stulz and Williamson (2003) to mention a few. LaPorta *et al.* (1997, 1998) have made a significant contribution to this topic concerning the legal determinants of financial development. By applying the settler mortality hypothesis of Acemoglu *et al.* (2001) to financial development, Beck *et al.* (2003) address how institutions matter for financial development.

Stulz and Williamson (2003) illustrated that the cultural and religious force of a society strongly determines the level of financial development. As to the role of macroeconomic policy on financial development, among others, Do and Levchenko (2004) and Huang and Temple (2005) study the importance of trade openness, while Chinn and Ito (2005) focus on the effect of financial openness. Both studies found a positive relation between trade/ financial openness and the development of the financial sector. Other large bodies of research identify macroeconomic factors such as inflation, the income level (GDP per capita), financial

[18]Size of the financial sector (liquid liability to GDP ratio-LLI) and Bank Credit allocated to private enterprises by the financial sector (BPCRE) which is less comprehensive than the ratio of total credit to the private sector. GDP Per Capita was used to asses economic growth rate

liberalization and the saving rate as important determinants of financial development while others stress on the role institutional factors and geographic factors on financial development.

Turning to some important determinants of financial development, some recent work have supported the view that policies which encourage openness to external trade tend to boost financial development (Do and Levchenko, 2004; Huang and Temple, 2005). Huang and Temple (2005) use cross-country and time-series variation in openness and financial development and found a positive effect of increases in goods market openness on financial development. Huang (2005) added that, national macroeconomic policies such as maintaining lower inflation and higher investment are conducive to financial development.

Research has equally been carried out to study the effects of financial liberalization on financial development over the past three decades following the McKinnon-Shaw model (McKinnon, 1973; Shaw, 1973), which concludes that, while financial repression reduces the quantity and quality of aggregate investment, financial liberalization can foster economic growth by increasing investment and its productivity. The positive link between domestic financial liberalization and financial development is supported by evidence of World Bank (1989) though domestic financial liberalization is not without risks (Demirgüç-Kunt and Detragiache, 1998). Research on the positive correlation between external financial liberalization, especially capital account openness, and financial development is equally discussed in the panel data studies of Bailliu (2000), Chinn and Ito (2005) and Seetanah *et al.* (2011).

Seetanah *et al.* (2011) holds that financial development fosters economic growth and proceeds to investigate the determinants of financial development in Mauritius using a time series data set from 1970 to 2008, by means of the ARDL approach and using two different proxies for financial development. The results from the study reveals that trade openness and financial liberalization are important determinants of financial development. In addition, investment rate, per capita income and literacy rates are also tested as others important factors in stimulating financial development. Inflation adversely influences financial development both in the short and long run. Cultural or religious forces were found to play an insignificant role in determining financial development in a multi-cultural society like Mauritius.

Twenty years after the financial reform of 1990s in Cameroon, studies are needed to evaluate the effects of the reforms and to determine how the new financial structure affects the real sector so as to correct loop holes in policy designs. Literature on finance and growth nexus permits us to understand that countries differ in their financial structures and this implies different outcomes on their real sectors (Levine, 1997 and others). It is therefore necessary to carryout country specific studies in order to relate the findings to policy designs within specific cases.This is done by examining the determinants of financial sector development in Cameroon.

Typically, financial sector liberalization in developing countries according to Jayati (2005) has been associated with measures that are designed to make the central banks more independent, relieve "financial repression" by freeing interest rates and allowing financial innovation, and reducing directed and subsidized credit, as well as allow greater freedom in terms of external flows of capital in various forms. All these measures contribute to the efficiency with which financial sector performs its financial functions.

Particularly, there is a great need to carry out a study to assess the success of financial sector reform (financial liberalization policy) and or investment rate which has been on the rise in the last decade in Cameroon on financial development and subsequently on economic growth. This is an important case as Cameroon economy has witnessed both financial repression and financial liberalization policies. The results of the study will enrich policy makers with empirical evidence on whether financial liberalization records some success in Cameroon or not. To accomplish this task, we shall first develop a theoretical framework from which the model is specified, followed by the model estimation procedure, presentation and discussion of empirical results.

4.4 Methodology

4.4.1 Theoretical framework

In order to establish the theoretical link between growth and financial development, let's assume that we have a closed economy represented by an aggregate production function where output Y(t) is produced during period t by capital factor only, K(t)

$$Y(t) = F(K(t)) \tag{4.1}$$

As in Rebelo (1991), K(t) is the aggregate capital stock, including physical and human capital. Total differentiation of equation (4.1) gives:

$$dY(t) = \frac{\partial F}{\partial K(t)} dK(t) \tag{4.2}$$

Dividing both terms of equation (4.2) by Y(t) gives the growth rate of the economy

$g = dY(t)/Y(t)$ as follows:

$$\frac{dY(t)}{Y(t)} = \mathbf{g} = \frac{\partial F}{\partial K(t)} x \frac{dK(t)}{Y(t)} \tag{4.3}$$

The growth rate **g** then appears as a product of the marginal productivity of capital $\partial F/\partial Kt$ and the investment rate dK(t)/Y(t). In this closed economy without government, the financial market equilibrium supposes the equality between savings and investment. However, we could envisage the hypotheses of a loss of resources during the intermediation process which could be explained by information asymmetry and or government intervention(World Bank Report, 1989), such that, in equilibrium, only a fraction of saved resources S(t) is channelled to investment I(t), as follows:

$$\mathbf{ØS(t) = I(t)} \tag{4.4}$$

The amount of savings absorbed by the financial system is then (1-Ø)S(t): the higher the amount, the lesser the capital accumulation in the economy. (Ø)S(t) is the fraction of saving effectively granted as credit to finance general economic activities. Investment rate (I(t)) is therefore an important factor which measures the efficiency of financial sector in granting credit contrary to the share of financial resource absorbed by the financial system. Combining this later equation with the growth rate of the economy, we have:

$$\mathbf{g} = \mathbf{F'(K(t))Ø}\frac{S(t)}{Y(t)} \tag{4.5}$$

From this simple model, it appears that an increase in the investment rate (dK(t)/Y(t)) by using economic policies that directly affect the saving behaviour and investment decision promote growth of the financial sector(Ø) and of the whole economy(g). The channelling of more savings

to investment by avoiding the loss of funds during the intermediation process through a rise in the fraction Ø contributes to the development of financial market and growth process of the economy. Increase in saving rate (S(t)/Y(t)) and improvement of capital productivity F'(K(t)) as in equation (4.5), with better allocation of credit toward its most productive use by the financial sector enhances economic growth.

4.4.2 Econometric model of financial development

To investigate the effect of investment rate and financial liberalization on financial development in Cameroon, a model of the following general form is specified

$$FD_t = f(W_t, Q_t, v_t) \tag{4.6}$$

Where:

FD_t is credit to the private sector as a ratio of GDP

W_t is a vector of investment rate and financial liberalisation considered as the main determining variables

Q_t is a set of others determining factors (openness of the economy, rate of inflation, size of the government, growth rate of GDP among others)

v_t is the error term

4.4.3 Variables Description

Financial Development (FD)

Financial development is measured in terms the ratio of credit to the private sector to GDP as used in King and Levine (1993), De Gregorio and Gudotti (1995), Ghirmay (2004), Ang and McKibbin (2005); Odhiambo, (2007); and Apergis *et al.*, (2007) among others. This indicator recognizes financial sector as an intermediary and it captures the allocative efficiency of the financial sector which makes it preferable to other indicators[19]. It isolates credit issued to the private sector, as opposed to credit issued to public sector or issued by the central bank. Private credit ratio has been extensively used because it improves on other measures of financial

[19] Size of the financial sector, Ratio of Commercial bank assets to that of commercial bank/central bank, and Size of the Stock market, as discussed in chapter three

development (Levine *et al.*, 2000). Higher level of private credit ratio is interpreted as higher level of financing services and therefore greater financial intermediary development.

The investment rate (INV)

Investment rate is taken as the ratio of gross investment to Gross Domestic Product. Total investment is made up of FDI and domestic fixed capital formation. As the rate of investment in an economy increases either by foreigners or indigenes, there is high demand for financial services. The volume of investment is related to the efficiency with which financial sector channel credit to the private sector (De Gregorio and Guidotti, 1995). Gross investment rate is expected to contribute to the financial development of a country.

Financial liberalization (FL)

Financial liberalization is viewed as a set of operational reforms and policy measures designed to deregulate and transform the financial system and its structure with the view to achieving a liberalized market-oriented system within an appropriate regulatory framework[20]. The effects of financial liberalisation have been a matter of some debate. In one view, it strengthens financial development and contributes to higher long-run growth. In another view, it induces excessive risk-taking, increases macroeconomic volatility and leads to more frequent crises.

Several measures of financial liberalization have been proposed in literature. Since financial liberalization is a process that involves the implementation of a number of policies, we preferably use a financial liberalization index constructed in Noula (2012) focusing on six different dimensions[21] of financial market policies. These include credit controls, Interest rate controls, Entry barriers, Operational restrictions for securities markets, Privatization of

[20]The pioneer theoretical analyses which provided a rationale for financial sector liberalization as a means of promoting financial development and growth were those of McKinnon (1973) and Shaw (1973).

[21] As opposed to a crude measure of financial liberalization (dummy) or a measure that focuses on just one or a few dimensions of financial liberalization used in many studies: Harris, Schiantarelli and Siregar (1994), Jaramillo, Schiantarelli and Weiss (1996), Hermes and Lensink (1998), Levine (2001), Eichengreen and Leblang (2003), and Bekaert, Harvey and Lundblad (2005).

financial institutions, and, Restrictions on international financial transactions. A positive relation is hypothesized for this variable.

Apart from our two main factors, there are equally other determinants of Financial Development. These variables include;

The size of the government (GOV)

Government consumption measured by General Government final consumption expenditure as a proxy for the size of the government. Government expenditure may have either a positive or negative impact on financial development depending on the financing effects of the government

Openness of the economy (OP)

Trade openness is measured as the sum of total exports and imports divided by GDP of a country. According Do and Levchenko (2004) and Huang and Temple (2005), policies which encourage openness to external trade tend to boost financial development. Openness variable is expected to have a positive sign.

Growth rate of real GDP (GR)

As an economy expands, there is a greater need for financial service as different sectors of the economy demand credit for obvious reasons thereby enhancing the development of the financial sector. The growth rate of an economy captured in this study by annual growth rate of real GDP is therefore expected to have a positive effect on financial development.

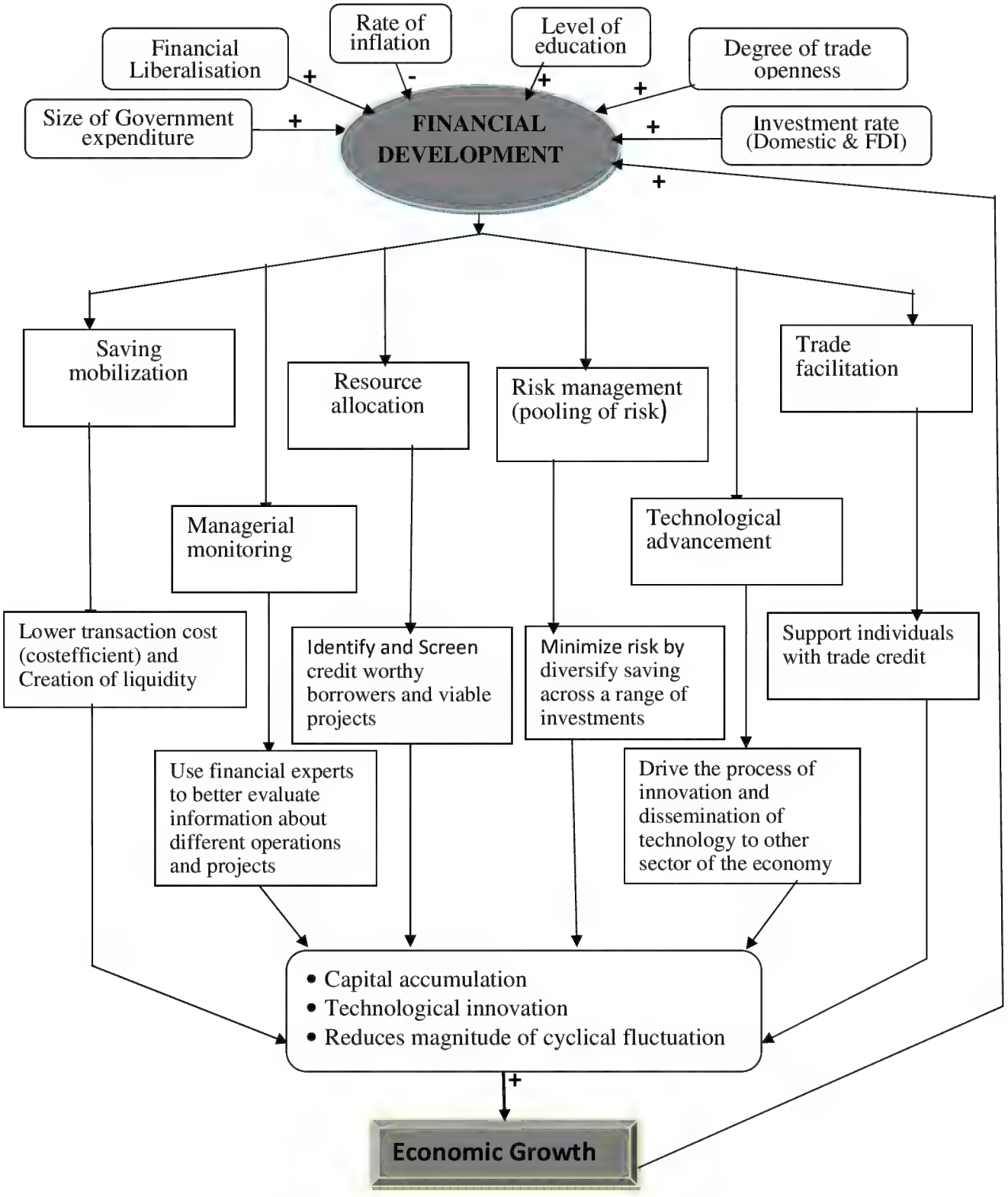
Rate of inflation (INFL)

The rate of inflation is captured by change in the Consumer Price Index. Inflation leads to arbitrary distribution of income (penalized depositors and favour borrowers). It makes people to save their financial resources in assets form rather than bank deposits. Persistent increase in general price level equally renders most functions of money ineffective and increases degree of uncertainty. With all these, it is reasonable to expect that inflation adversely influences financial development both in the short and long run.

The following figure summarizes the expected relationship between macroeconomic variables and financial development as well as the channel through which financial development affect the general level of economic growth. The a priori relationship is indicated with '+' and '-' for positive and negative links respectively.

It is noticed from the figure that financial development of a country is the outcome of many macroeconomic variables (predictors). Apart from high rate of inflation which deter financial development (defined in terms of credit to the private sector), the rest of the determinants so far identified tend to foster financial development. Most especially, financial liberalization has a positive relation with financial development as well as the level of gross investments.

Figure 4.1: Causes of Financial Development and channels through which it affects Economic Growth



Source: Designed by Author

4.4.4 Specification of the long run model for the determinants of financial development

To empirical investigate the relationships between financial development and its determining variables, time series data are compiled from World Development Indicators CD-ROM (2011), the IMF (2012), the International Financial Statistics- IFS CD-ROM (2010), and Statistics from the National Institute of Statistics (NIS) in Yaounde[22]. The following cointegration equation is specified:

$$Log(FD)_t = b_0 + b_1 Log(INV)_t + b_2(FL)_t + b_3 Log(GOV)_t + b_4 Log(OP)_t + b_5(INFL)_t + b_6(GR)_t + e_t \quad (4.7)$$

Where;

LogFD is the Log of financial development

LogINV is the investment rate

LogFLI is the Log of financial liberalization index

LogGOV is the Log of size of the government

LogOP is the Log of openness of the economy

INFL is rate of inflation

GR is the growth rate of real GDP

e_t is the error term

4.4.5 Error correction model of financial development

To capture short run adjustments of financial development from longrun model, we specify a flexible dynamic distributed lag model which includes an error correction term from a cointegrating regression as in equation (4.7)

[22]Absence of data for some variables at certain periods constrained us to limit the length of empirical analysis (from 1977 to 2010)

$$\Delta Log(FD)_t = a + \sum_{j=0}^{n1} b_j \, \Delta Log(INV)_{t-j} + \sum_{j=0}^{n2} c_{i,j} \, \Delta Log(FLI)_{i,t-j} + \sum_{j=0}^{n3} d_{i,j} \, \Delta Log(GOV)_{i,t-j} + \sum_{j=0}^{n4} m_{i,j} \, \Delta Log(OP)_{i,t-j} + \sum_{j=0}^{n5} n_{i,j} \, \Delta(INFL)_{i,t-j} + \sum_{j=0}^{n6} p_{i,j} \, \Delta(GR)_{i,t-j} + \sum_{j=1}^{n7} q_j \, \Delta Log(FD)_{t-j} + \pi \hat{e}_{t-1} + \mu_t \quad (4.8)$$

where $\hat{e}_t$ is the predicted residual term from a co-integrating relationship estimated from the long-run model in equation (4.7), π is the coefficient of the error correction term, Δ is the difference operator and μ_t is the usual white nose. This procedure is however valid only if, at least, a co-integrating relation exists among the variables irrespective of whether there possess unit roots at level form or not. This entails testing for the significance level of the lagged residual term ($\hat{e}_{t-1}$) included in the ECM (equation 4.8). When it is significant, the variables are said to be cointegrated and error correction terms exist to account for short run deviations from the long run equilibrium relationship implied by the cointegration.

4.5 Estimation procedure

Like in the first empirical chapter of this study, Engle and Granger (1987) method of cointegration is used instead of Johansen (1988) method of cointegration because of the limited length of data (from 1977-2010). The method requires time series pre-testing. As such, all the variables in the model are first tested for unit roots by the Augmented Dickey–Fuller (ADF) and Phillip- Perron (PP) test to eliminate the possibility of spurious regressions. The second step consists of estimating a long-run cointegrating relationship between the variables using the cointegration-error correction framework as discussed in section 4.4.4.

We proceed from the estimation of a cointegrating long run estimate of Equation (4.7) to the short-run error-correction model (ECM) using the general-to-specific methodology. Two-step procedure is followed for estimating cointegrated error correction models. In the first step, the co-integrating regression is estimated by ordinary least squares; and the residual series (if it turns out to be stationary at level form 'I(0)') is lagged and included among the explanatory variables in the second step to estimate the error-correction mechanism in addition to the short run dynamic model.

4.6 Empirical Results and discussion

From the foregoing methodology, we will first present the results of unit root test, followed by the results of cointegrating regression and those of its short run dynamics counterparts (ECM). Although the model financial development as specified in equation (4.7) includes a good number of explanatory variables, we will lay more emphasis on the effects of financial liberalization, and gross investment rate. All the necessary calculations and manipulations are done with the help of Microsoft Excel, Eviews and STATA econometric softwares.

4.6.1 Results of unit roots test.

The table below presents the Philip Perron (PP) and the Augmented Dickey-Fuller (ADF) unit roots test results. This consists of rejecting or accepting the null hypothesis, Ho, of unit roots or non stationarity of the series. The results are presented in the Table (4.1).

Table 4.1: ***Results of Unit Roots***

variables	**ADF unit root test**		**PP unit root test**		**Order of integration**
	Level Form	**First difference**	**Level Form**	**First difference**	
$Log(FD)_t$	-1.277	-3.332b	-1.117	-4.279 [a]	I(1)
$Log(INV)_t$	-2.162	-5.731 [a]	-1.797	-7.978[a]	I(1)
$Log(GOV)_t$	-1.322	-4.101 [a]	-0.310	-4.004 [a]	I(1)
$(INFL)_t$	-3.555[b]	-6.137	-3.445[a]	-6.780	I(0)
$Log(OP)_t$	-1.301	-4.154 [a]	-1.048	-4.726 [a]	I(1)
$(FL)_t$	-1.271	-3.937[a]	-1.240	-5.659 [a]	I(1)
$Log(FLI)_t$	-1.301	-3.425[b]	-1.071	3.526[b]	I(1)
$(GR)_t$	-3.90 [a]	-7.522	-3.199 [a]	-8.451	I(0)

MacKinnon critical values at 1%, 5% and 10% are respectively -3.6496, -2.9558 and -2.6164. ([a]), ([b]) indicate variables significantly stationary at 1% and 5% levels of confidence respectively.

Source: By Author

The results depict that most of the variables used in this chapter are integrated to the order one, I(1) except the variable for growth rate and that of the rate of inflation.

4.6.2 Testing for the stationarity of error term

The results of cointegration regression equation of Financial Development are presented in Table (4.2). Estimates of Model 1 considered financial liberalisation as a dummy whereas Model 2 considers it as an index constructed based on six parameters as discussed earlier.

Table 4.2: Results of cointegrating regression of Financial Development in Cameroon

Dependent Variable: Log of Financial development- $(LogFD)_t$		
Independent Variables	**Model 1**	**Model 2**
Constant	2.150* (1.803)	3.808* (1.930)
Log of investment rate: $(LogINV)_t$	0.619*** (2.874)	0.332 (0.748)
Financial liberalisation dummy: $(FL)_t$	-0.930*** (-9.463)	-
Log of Financial liberalisation index: $(LogFLI)_t$	-	-0.413*** (-4.395)
Log of government spending: $(LogGOV)_t$	-0.322* (-1.811)	-0.127 (-0.434)
Log of the degree of openness: $(LogOP)_t$	-0.019 (-0.100)	-0.259 (-0.871)
Rate of inflation: $(INFL)_t$	0.002 (0.354)	-0.003 (-0.393)
Economic growth rate: $(GR)_t$	-0.012* (-1.784)	-0.015 (-1.377)
Augmented Dickey-Fuller unit root test	**-4.646*** **	**-4.132*** **
Phillips-Perron unit root test	**-4.894*** **	**-2.180**
R-squared	**0.940**	**0.850**
Adjusted R-squared	**0.927**	**0.822**
F-statistic	**71.04** (*p=0.000*)	**25.25** (*p=0.000*)
Breusch-Godfrey LM Test	**0.957** (*p=0.398*)	**14.20** (*p=0.040*)

Superscript ***, **, * indicate significance at the 1, 5, and 10% levels, respectively. Values in parentheses represent the calculated t-statistics

Source: By Author

The results of unit roots test on residuals are included in Table (4.2). The intention of these tests is to verify whether longrun relationships exist between the variables or not. Unlike the the ADF

test which is significant at level form, the results of Phillip Perrons unit roots tests on Model 2 indicate that the model in non stationary at the level form. This indicates that the ECM of Model 2 does not exist according to Phillips Perrons test statistics as the calculated value of PP is instead greater than its critical value at the borderline (10 percent). There is also evidence of serial correlation of the error term in model 2 as indicated by Breusch-Godfrey LM Test and the model is not highly robust compared to model 1. The results of both unit roots tests on the error term of Model 1 are highly significant at the level form. This is an indication that longrun relationship exists between the variables. The error terms of both models are negative and stationary at the level form following ADF unit roots tests which signify that the error correction dynamics of the models can be estimated as in Table (4.3).

The results of both error correction models reported in Table (4.3) suggest that financial development in the short run is determined by growth rate of gross domestic product, inflation rate and the first differences of financial liberalisation. First difference of gross investment rate bears the expected positive sign in both models but was only significant in a model which considers financial liberalisation as a dummy.

Table 4.3: Results of Error Correction Model for Financial Development in Cameroon

Dependent Variable: $\Delta(LogFD)_t$		
Variables	**ECM 1**	**ECM 2**
C	0.014 (0.410)	-0.050 (-1.463)
$\Delta(LogINV)_t$	0.332* (1.788)	0.217 (1.361)
$\Delta(FL)_t$	-0.473*** (-2.825)	-
$\Delta(LogFLI)_{t-1}$	-	0.231* (1.763)
$\Delta(LogGOV)_{t-1}$	0.098 (0.459)	-0.097 (-0.470)
$\Delta(LogOP)_t$	0.324 (1.475)	0.106 (0.534)
$(GR)_{t-1}$	0.011** (2.439)	0.016*** (3.517)
$(INFL)_{t-2}$	-0.011** (-2.532)	-0.009** (-2.342)
$(ECT)_{t-1}$	-0.592*** (-3.040)	-0.567*** (-4.347)
R-squared	**0.463**	**0.583**
Adjusted R-squared	**0.312**	**0.461**
F-statistic	**3.076** (*p= 0.018*)	**4.788** (*P= 0.002*)
Breusch-Godfrey LM test	**0.507** (*P= 0.609*)	**4.673** (*P= 0.202*)
ARCH test for heteroscedasticity	**0.333** (*P=0.568*)	**1.525** (*P= 0.227*)

Superscript ***, **, * indicate significance at the 1, 5, and 10% levels, respectively. Values in parentheses represent the calculated t-statistics

Source: By Author

4.6.3 Interpretation and Evaluation of Econometric Results

The coefficient estimates for gross investment rate and that of financial liberalization in the cointegration regression results presented in Table (4.2) and those of the corresponding ECM estimated in Table (4.3) enable us to establish the following empirical relations between these variables and financial development in Cameroon.

The value for gross investment rate has a positive sign as hypothesized in both short and longrun. The result of model 1 on cointegrating regression indicates that the variable is significant at 1 percent in explaining variations in the total credit to the private sector (financial development) in the long run. The effect of investment is equally positive in the short run but insignificant in one of the two ECMs. This may be explained by the fact that, at the initial stage of investment projects, firms do not have enough collateral security to permit them obtained sizeable loans from financial institution. And as the firms grow, they acquired financial economies, borrow huge sum of money for further expansion and to set up new plants.

From these results, it is obvious that there exist a long run positive relationship between the rate of investment and total credit to the private sector. A similar result is reported in Seetanah *et al.* (2011). This indicates that policies to encourage gross investment including both domestic and foreign direct investments could be enhanced in Cameroon to increase the efficiency of the financial sector in allocating credit to the private sector leading to financial development.

The results of long run cointegrating relation indicates that the effect of financial liberalisation on financial development does not matter where the former is captured as an index or in the form of a dummy. Both proxies of financial liberalization have negative and highly significant long run effects on financial development. Financial liberalisation considered as an index however, has the expected positive effect on financial development in the short run. We can thus conclude that there exists a strong long run negative but short run positive relationship between financial liberalization and total credit to the private sector. This result tied with the general postulation in literature that financial liberalisation does not lead to higher growth in relatively low income countries in the long run because their financial systems are not sufficiently developed so as to permit significant increases in level of domestic financial credit flow.

The results equally report a negative relation between inflation rate and financial development in the short run as expected which is in line with the result of Huang (2005). It is equally noticed that growth rate of real GDP contributes to financial development in the short run but its effect is instead negative in the longrun. Our results however do not strongly support the view of Chinn and Ito (2005), Do and Levchenko (2004) and Seetanah *et al.* (2011) that financial openness significantly promotes financial development.

The four models reported in Table 4.2 and 4.3 are globally significant at 1 and 5 percent respectively, as indicated by their various F-statistics. The unit root test on the error correction term (ECT) is significant at 1 percent following at least one of the two tests conducted and its coefficient bears the correct *negative* sign, indicating that financial development is really cointegrated with its determining factors. The probability (p) of Breusch-Godfrey LM test and heteroscedasticity test indicate that there no evidence of abnormality of error and serial correlation of the successive error terms in the model and its ECM counterpart.

4.6.4 Long and short run dynamics and direction of causality between the variables

Short term causality is verified using the Engle and Granger causality test and the long run causality is tested by the use of Johansen and Juselius causality test.

4.6.4.1 Engle and Granger causality test.

The test consists of rejecting the Ho hypothesis of no causality when the probability of the F-Statistics is less than 10percent. The results of this test is presented in Table (4.4)

Table 4.4: Results of short run causality test between logarithms of financial liberalization, investment rate and financial development

Null Hypothesis:	**Obs**	**F-Statistic**	**Probability**	**Decision**
LogFD does not Granger Cause LogINV	34	0.43380	0.65218	Accept Ho
LogINV does not Granger Cause LogFD		1.94870	0.16067	Accept Ho
LogFLI does not Granger Cause LogFD	32	12.4844	0.00014	Reject Ho
LogFD does not Granger Cause LogFLI		0.53576	0.59132	Accept Ho

Source: Authors calculations

The results of short run causality in Table (4.4) report the existence of one way causality from financial liberalization to financial development as the null hypothesis of no causality is rejected. No causality is noticed between investment and financial development as the null hypotheses of no causality is accepted in both directions.

4.6.4.2 Johansen and Juselius causality test

This test is employed to test the long run causality. To conduct this test, there is a need to re-examine the results of Error Correction Models (ECM) of the financial development (FD) presented earlier on Table (4.3). The use of these models is justified by the fact that the variables are a mixture of stationary I(0) and non stationary I(1) as noticed from the unit roots results in Table (4.1). Using the ECM for this test is thus, no prone to dubious results. The ECM is the difference between the observed and expected value of the dependent variables and therefore allows for the detection of the short and long run dynamics of the error correction term ($ECT_{(-1)}$).

Testing for long run causality consists of investigating the significance of the coefficient of the lagged error correction term (ECT_{t-1}) in the Error Correction Model. The $(ECT)_{t-1}$ is negative and highly significant in both error correction models estimated. That is, the lagged error-correction terms of '-0.592' and '-0.567' for the two ECMs are correctly signed, and highly significant. This is an indication that about 59 and 57 percent respectively of shocks on the financial development are corrected by the "feed-back" effect annually according to the two models (ECM 1 and 2).

4.7 Conclusion and policy implications

The objective of this chapter was to clarify public doubts on the extent to which the rate of investment and financial liberalization policy contribute to financial development in Cameroon. This target is achieved by estimating two-steps–least square econometric model using Cameroon's time series data from 1977 to 2010. We started by overviewing the financial market and financial development in Cameroon followed by exploring some relevant literature around the issue.

Both the cointegration test and causality tests are used to investigate the correlation between financial liberalization, gross investment rate, and financial development. It is noticed that gross investment significantly promotes financial development in the long run and short run. The effect of financial liberalization is equally very highly significant in both the short- and long run in explaining changes in credit to the private sector but negative in the long run. Results of short term causality report one-way causality from financial liberalization to financial development and

not the other way round. Longrun causality test following the test of weak exogeneity reports a strong causality between these variables and financial development.

Base on the results of our research, two main suggestions aimed at fostering the development of financial sector are imperative. First, policies to encourage gross investment such as lowering the interest rate, improving on infrastructural facilities of the country, ensuring political stability, granting of subsidy or tax concession to investors could be implemented in Cameroon to increase the efficiency of the financial sector in allocating credit to the private sector leading to financial development. Second, the current financial liberalization policies undertaken should only be in encouraged in the short run. The reform policy should not be encouraged if the intention is to increase the allocation of financial resource to the private sector in the longrun as a negative and significant result is reported between the policy and private credit.

Chapter Five:

EFFECTS OF PUBLIC SPENDING AND TRADE POLICY ON REAL EXCHANGE RATE

5.1 Introduction

Issues related to exchange rate management are amongst the important concerns of the current debate on economic reform of most countries. Exchange rate plays a crucial role in the stabilisation and adjustment programs (Rodríguez, 1989; Servers and Solimano, 1992). Exchange rate reform was given a special attention in the adjustment program which was adopted after the economic crisis of the late 1980s (Elbadawi and Soto, 1997). Like is the case with Cameroon, most of the Sub Saharian African (SSA) countries produce and export primary products which need to be competitive in the world market (Aron, Elbadawi and Khan, 1997). This makes exchange rate an important policy instrument.

Real exchange rate (RER) is an expression of the total macroeconomic environment and is equally a major influence of international competitiveness. It is an important relative price signalling intersectoral growth in the long-run. The level of the real exchange rate (relative to an equilibrium real exchange rate level) and its stability greatly influence the volume of exports and private investment (Caballero and Corbo, 1989; Servers and Solimano, 1992).

As is the case with other members of the Franc Zone (FZ), the exchange rate is exogenous to Cameroon and does not constitute a policy instrument in the country. The nominal exchange rate (NER) of CFA franc was institutionally pegged to French Franc and through the French Franc to EURO since member countries do not have the opportunity to unilaterally change the nominal exchange rate as a policy option without the permission of France plus consensus among them. It is thus imperative to provide other macroeconomic variables that a country like Cameroon with restricted decision on its nominal exchange rate can manipulate to influence its real exchange rate. In order to make any adjustment on the exchange rate, policy makers need to be informed about the probable tendency of the equilibrium exchange rate and by how much it has changed. Real exchange rate equilibrium itself says nothing about under-or over-valuation of the domestic currency.

To determine at any period whether real exchange rate (RER) is undervalued or overvalued, or at equilibrium, and to maintain a target RER is therefore among the preoccupations of policy makers. To do this, there is need to specify the equilibrium RER model in view of inferring, particularly, the effect(s) of public spending and trade policy. The main determinants of real exchange rate noted in a number of studies[23]include the terms of trade, trade openness of the economy, capital flows, per capita real GDP growth relative to other countries andforeign borrowing.

Importantly, trade policy measures the extent to which an economy is opened through trade liberalization. Trade policy includes the use of exchange controls, tariffs, quotas and import licenses. Liberal trade measures have to do with reduction of tariffs and licenses on tradables which lower its relative price, increase the volume of trade thereby inducing a real exchange rate appreciation (Aron *et al.*, 1997). Trade restrictive policies cause real exchange rate appreciation through their impact on the price of non tradables (Edwards, 1989; Elbadawi and Soto, 1997).

Another crucial real exchange rate determining factor that has attracted the attention of many researchers is public expenditure. To Elbadawi and Soto (1997), Baye and Khan (2002) and others, public sector consumption increases aggregate demand in the economy and its impact on real exchange rate depend on both the level and distribution of the expenditure between tradable and non-tradable goods. Increase in demand arising from public spending always raises relative prices of non-tradable leading to real exchange rate appreciation. Edwards (1989) tested and confirmed this result for a set of 12 developing countries.

In spite of the role played by real exchange rate in shaping country-wide policies, little quantitative work has been carried out to thoroughly examine the influence of some key macroeconomic variables on real exchange rate in Cameroon. Amin and Awung (1997) evaluated the determinants of real exchange rate, simulated the path of the equilibrium real exchange rate and evaluated the degree of its misalignment. Using the cointegration methodology, they found that the explanatory variables have only a short-run impact on the real exchange rate. They failed to explicitly identify the path of the equilibrium real exchange rate. Elbadawi and Soto (1997) and Baye and Khan (2002) used the fundamental approach in the determination of equilibrium

[23]Edwards (1989),Cottani and al, (1990),Ghura and Grennes (1994), Aron and al (1997),Elbadawi and Soto (1997) among others

RER but did not take into account the effect of financial development and FDI on the RER determination. In addition, these studies neglected to conduct a causality test between RER and economic growth in Cameroon.

With these lapses in literature, one is pushed to ask the following question: what is the nature of the relationship between government spending, trade policy and real exchange rate in Cameroon? The choice of these variables is motivated by the fact that Cameroon is a mixed economy with government practically intervening in almost all the sectors. The economy is equally very opened to the rest of the world most especially through external trade. It is therefore of interest to augment the existing knowledge in this field with the possible nexus between these variables and real exchange rate.

The objective of this chapter is therefore to examine the determinants of real exchange rate in Cameroon. Specifically, to verify the link between public expenditure, trade policy and real exchange rate using Cameroon's time series data.

Two research hypotheses are prominent from the forgoing objective, assuming other things constant.

- Government spending tends to appreciate the real exchange rate of domestic currency.
- Trade openness has the tendency of appreciating the real exchange rate in Cameroon.

Having introduced the chapter in Section 1, the rest of the chapter is arranged in the following order: Section 2 focuses on an overview of exchange rate arrangement and distortions in Cameroon whereas relevant theoretical and empirical literature are reviewed in Section 3; Section 4 describes data and econometric techniques used in investigating short- and long-run relationships between the variables; Section 5 presents and discusses the economic results, meanwhile Sections 6 concludes the chapter.

5.2 An overview of trade policy, government spending, exchange rate arrangement and distortions in Cameroon

Cameroon is a member of the Franc zone whose currency- the CFA franc is pegged to the French Franc between1948 and 1999. This zone is made of two regional Central Banks: BEAC and

BCEAO[24]. Member countries have maintained a fixed parity between the CFA Franc and the French Franc (FF) of 1FCFA to 0.02FF until January 12, 1994 when CFA franc was devalued to 1FCFA equal to 0.01FF after a unanimous decision of the Franc Zone member countries and France. In addition, there was free transferability of the currency among members of the BEAC or BCEAO zones until August 1993. The reserves of the zone are pooled together and members use a common foreign exchange policy against the rest of the world. There was equally full convertibility of the CFAF to the FF and now to the EURO through the 'Operations account' kept at the French Treasury in which at least two-thirds of all foreign reserve earnings of member countries are held (Baye and Khan, 2002).

In Cameroon therefore, there is absence of independent monetary policy as a whole and particularly, the exchange rate policy. Monetary policy of CEMAC region are taken at the level of BEAC and implemented by the national branch. BEAC is independent of national governments and works only in collaboration with France whose approval is necessary before major decisions are taken. This facilitates the control of inflation in the region though it might be at the cost of output and employment objectives pursued by the individual governments.

Government expenditure and development programs were extended in Cameroon in the 1970s and 1980s. Salary increments were very frequent. The wage increments enhanced the volume of purchasing power in the hands of the general public. Construction activities expanded, pulling manpower from rural areas. External trade was liberalized as high tariffs were slammed on imports. Illegal activities like smuggling of goods became attractive. Producers of traditional agricultural exports were heavily taxed. All these conspired to expand the non-tradable sectors of the economy by absorbing resources from the tradable sector. This is believed to have severely appreciated the RER and reduced the productivity and the competitiveness of the export sector from the close of the 1980s (Baye and Khan, 2002).

Until 1986, the performance of the Franc Zone appeared comparatively good in Sub-Saharan Africa characterized with reasonable growth of real gross domestic product (GDP). From 1987, however, real output fell by 2 percent and subsequent estimates were far more discouraging

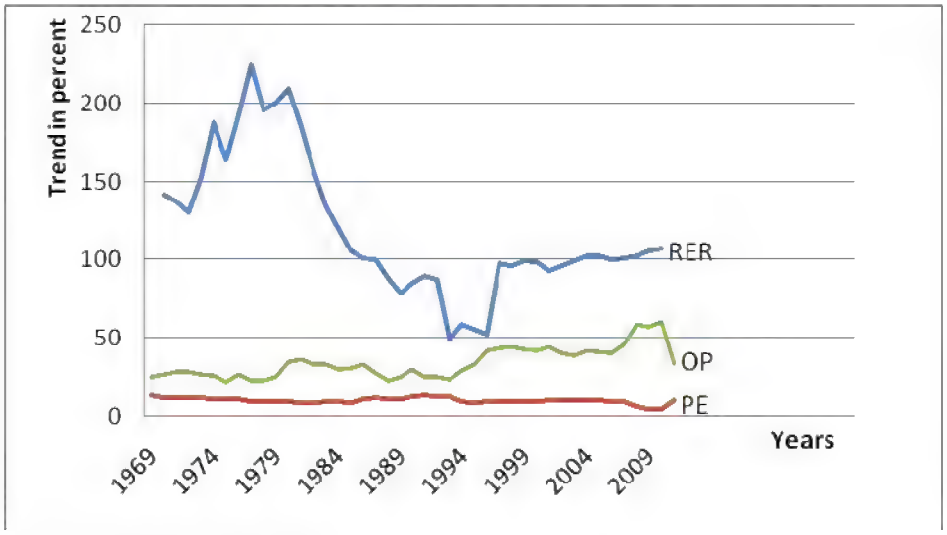
[24] The member countries of BEAC (Banque des Etats de l'Afrique Centrale) are Cameroon, Chad, Central African Republic, Congo, Equatorial Guinea and Gabon; and BCEAO (Banque Centrale des Etats de l'Afrique de l'Ouest) have as members, Benin, Burkina Faso, Côte d'Ivoire, Mali, Niger, Senegal and Togo.

(Baye, 1995). There was a noticeable drain of CFA Franc notes from the FZ. The CFAF being a convertible currency became attractive to businessmen in the FZ neighbourhood. They used it as a store of value as well as to import goods from France and beyond to their countries. Some of the imported goods were subsequently smuggled into the economies of the FZ. This chronic liquidity shortage in the FZ among other external factors led the two Central Banks on August 2, 1993 to suspend the repurchase of the CFA notes exported out of the zone. This was followed barely five months later by a 50 percent devaluation of the CFA Franc on January 12, 1994 (Baye and Khan, 2002).

According to Devarajan and Hinkle (1994), the crisis in the CFA countries in the late 1980s and early 1990s was, at least in part, blamed on the severely overvalued RER. This was believed to have eroded the profitability of producing tradable goods and aggravated both financial and economic imbalances and long-standing structural problems.

The following figure summarizes the evolution of Real exchange rate (RER) of FCFA, trade openness and public expenditure in Cameroon.

Figure 5.1: Evolution of real exchange rate, trade openness and public expenditure in Cameroon (1969-2010)



Source: Constructed by the Author

The above figure depicts that the RER in Cameroon that was rising before 1980 had since then been fallingto barely 49.4% in 1993. With the devaluation of nominal exchange of FCFA by 50 percent in 1994, the trend began to improve slowly. The general trend in trade policy measured

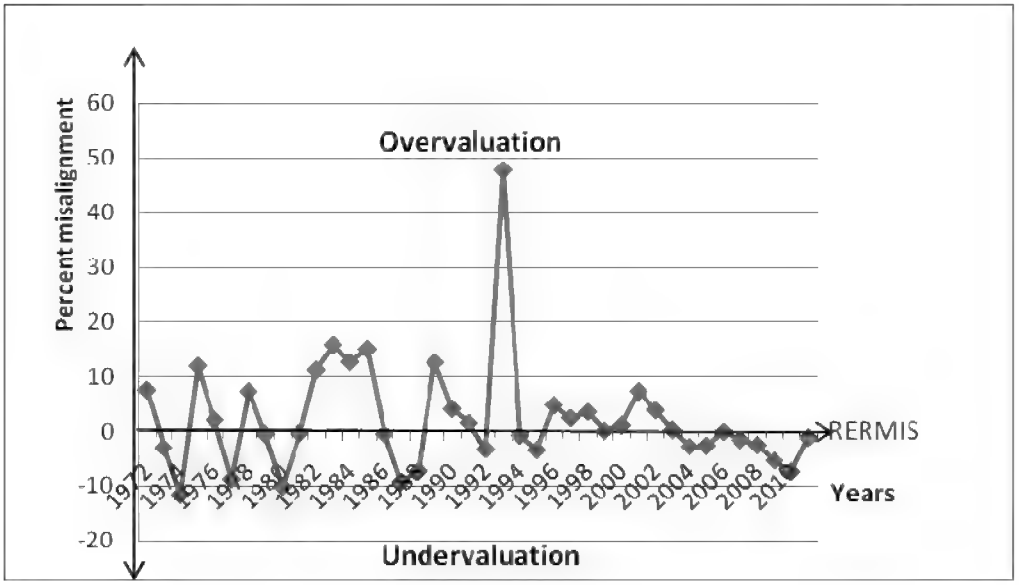
by the degree of trade openness fluctuatingly rises through out the period under study. Public spending ratio with the overall average of 10.1 percent has a general tendency of falling especially in the last decade as it fell from 10.2 percent in 2001 to barely 4.7 percent in 2010. The graphs indicate a less noticeble inverse relation between RER and these variables especially between 1980 and 1994. The same relation maintains between the RER and public spending in the post devaluation era. Based on the measure of the RER used in this study, such negative relation merely indicate that liberal trade policy and expansion in government spending lower the relative prices of tradable goods to those of non tradable leading to appreciation of the RER.

Internal adjustments such as fiscal policy and trade policy measures are the only options that countries like Cameroon within the BEAC zone, can carry out to manage its RER. Cameroon cannot make any unilateral changes in its nominal exchange rate. The nominal exchange rate is determined jointly by the governments of the BEAC zone through the monetary authorities, which may give room for potential distortions in the various member countries.

Distortion of RER measures the rate at which the RER deviates from its equilibrium path. It tells us at a particular period whether the RER is over-valued, under-valued or is at its long run equilibrium track. The rate of distortion of the real exchange rate can be expressed as the ratio of the difference between equilibrium real exchange rate and RER to the RER such that positive result indicates overvaluation and negative result indicates undervaluation.

For the case of Cameroon, the RER is found to be near the equilibrium in some periods and misaligned in other periods, experiencing both periods of the RER overvaluation and under-valuation. The degree of overvaluation got to its peak in 1993 - just before the 1994 devaluation. The real exchange rate became slightly undervalued in 1994 and 1995 before becoming overvalued in 1996. The following figure shows the evolution of the rate of misalignment of the CFA franc in Cameroon between 1972 and 2010.

Figure 5.2: Misalignment of CFA franc in Cameroon from 1972 to 2010



Source: Constructed by the Author [25]

There is an indication that the RER was near equilibrium (with absolute value of RER misalignment less than one) in 1979, 1981, 1986, 1994, 2000 and 2006. The RER was undervalued for a number of years (1974, 1980,987, and 2009). The RER over-valuation was relatively high in 1983, 1985, 1989, 1993 and 2001. The RER overvaluation got to its peak in 1993 with the magnitude of 47.85 percent just at the eve of the 1994 devaluation of FCFA.

The relatively high RER overvaluation of the late 1970s and early 1980s (with the exception of 1980) corresponds to the advent of oil exploitation and the commodity boom. This RER misalignment was not as pronounced as would have been expected, perhaps because of the prudent manner in which oil revenue was deliberately kept off-budget. Devarajan and De Melo (1987) believe that about 75 percent of the oil revenue was saved abroad and the government used the oil revenues to pay part of its foreign debt, as well as, raising producer prices of cocoa and coffee when world market prices crashed in the early 1980s. The revenue was not entirely channeled into consumption activities and this minimized the rate at which RER could have appreciated.

[25]RER misalignment (RERMIS)= (ERER/RER)-1

5.3 Theoretical and Empirical Literature Review

5.3.1 Theoretical Review

Equilibrium exchange rate evolves following a trajectory determined by fundamental modifications. Long-run real exchange rate in the Edwards model depends exclusively on real variables. In the works of Cottani *et al.* (1990), Ghura and Grennes (1994), Aron *et al.* (1997), Elbadawi and Soto (1997) taken as a whole, real exchange rate determinants are mainly the terms of trade, the degree of openness of the economy, and capital flows, Foreign exchange reserves, and Per capita real GDP growth relative to other countries.

Elbadawi and Soto (1997) noted that the effect of the terms of trade (TOT) on RER operates through import and export price variations. The relationship between RER and TOT depends on the weight of the income and substitution effects. If the income effect dominates, an improvement in TOT translates into an increase in the demand for both tradable and non-tradable. While the prices of tradables are quoted in the world market, non-tradable prices would rise in response to the increased demand. Hence, the RER will appreciation. If the substitution effect dominates, then the effect of the TOT will work in the opposite direction by lowering the domestic cost of imported inputs in the production of non-tradable goods and TOT will attract a positive coefficient. But usually, the income effect of TOT improvement dominates the substitution effect (Edwards, 1989; Aron *et al.*, 1997; Baye and Khan, 2002).

Trade liberalisation or the openness of the economy is characterised by a reduction or elimination of export taxes and import tariffs, and hence leads to an increase in the volume of trade. The import tariffs and export taxes account for only explicit commercial policy but implicit commercial policy has also been important. This includes the use of exchange controls, quotas and import licenses. Increasing trade liberalisation is expected to depreciate the real exchange rate (Aron *et al.*, 1997). Foreign exchange reserve is expected by the theoretical model to have a positive impact on the real exchange rate, consistent with its role as a relatively liquid indicator of the stock of national wealth.

The second strand of theoretical literature consider in this chapter, focuses on the link between RER and economic growth. The well-known Balassa-Samuelson hypothesis[26] sets out a channel through which real variables, in particular productivity changes, can affect the real exchange rate. The hypothesis is one of the most important hypotheses with respect to the equilibrium real exchange rate level which reveals that rapid economic growth is accompanied by real exchange rate appreciation because of differential productivity growth between tradable and non-tradable sectors. It holds that, countries with relatively high productivity in its non-tradable goods sector is likely to witness depreciation of their real exchange rate meanwhile countries which instead exhibits relatively high productivity growth in its tradables sector over time is liable to secular appreciation of its real exchange rate.

The hypothesis confirms that during development process, productivity increases in the tradable sector tend to be higher than those in the non-tradable one and richer countries have a higher real exchange rate. According to the Balassa Hypothesis the effect of productivity improvements in one country is not transmitted to other countries. In yunfa-Adian model such spillover effects are taken into account through international trade linkages. So if there is a productivity improvement in the tradable sector in a country this leads to relative price changes between tradable and non-tradable sectors, not only in the country but also in the other country because of trade linkages.

Real exchange rate stability and its correct alignment are known to be necessary conditions - though not sufficient - for economic development (Williamson, 1997). This agreement has induced numerous estimations of equilibrium real exchange rates in developing countries during the eighties and early nineties. Real exchange rate determinants and the effects of misalignment has been the subject of numerous theoretical and empirical works. The Edward model (1988) is the most extensively used framework equilibrium real exchange rate evaluation for developing countries.

Many approaches are proposed in the literature for measuring the equilibrium real exchange rate (ERER). This includes the PPP approach, the elasticities approach, the DLR (Devarajan, Lewis and Robinson, 1993) approach based on an extension of the Salter-Swan model, and the fundamental approaches. The purchasing power parity (PPP) concept associates the ERER with

[26]or simply the Balassa Hypothesis named after (Balassa, 1964; Samuelson, 1964)

the value of the real exchange rate in a period of external balance (known as the base year), adjusted for inter-country differences in inflation rates. Williamson (1997) considered the PPP concept inadequate and misleading due to difficulty in identifying the base year when the current account would be in equilibrium and also the fact that the ERER is a constant under the approach and does not change.

The elasticity approach estimates the equilibrium real exchange rate that will equilibrate the balance of trade. Here the ERER is defined as the rate for which the market is in equilibrium or at an acceptable or sustainable level of disequilibrium. There are a number of difficulties with this approach. The first difficulty is that of the subjective way in which the sustainable level is determined and another difficulty is the determination of import and export elasticities, since imports and exports are aggregates of many different products with very different price elasticities.

The DLR approach divides the economy into three goods: exports, imports and domestic goods. In this approach, the ERER is that RER which is consistent with a particular current account target, given changes in import and export prices, and terms of trade shocks. This approach though apparently looking very appealing as it allows a quick calculation of RER misalignment and is equally very parsimonious in its use of data has two main shortcomings. First, it is difficult to determine the base year. The choice of base year relies on the personal judgment of the researcher as is the case with the PPP approach. It is equally difficult to estimate the elasticities of transformation and substitution which is required in this method (Elbadawi and Soto, 1997; Baye and Khan, 2002).

The method adopted in the present study is the fundamentals approach (Edwards, 1989; Williamson, 1994; and Ghura and Grennes, 1994; Elbadawi and Soto, 1997; Baye and Khan, 2002), which models the evolution of the RER as a function of the fundamentals (terms of trade, public expenditures, trade liberalization or openness, technical progress, capital flows, and so on) of the economy. It estimates the responsiveness of the RER to changes in these fundamentals. Data requirements of fundamental approach is however large as compared with the DLR approach.

5.3.2 Empirical Review

According to Williamson, 1994, the inadequacies of African exchange rate policies have for some years been one of the stumbling blocks to the continent's progress. The validity of statements like this has attracted a lot of interest in exchange rate issues in Africa in the latter half of the 1980s and the 1990s. Many studies have been conducted to understand and explain the role of the exchange rate in these economies (Edwards, 1988; Cottani *et al.*, 1990; Elbadawi, 1992; Elbadawi and Soto, 1997; Parikh, 1997; and many others). The interest was further increased as the international donors targeted the exchange rate as one of the key instruments in the structural adjustment programmes to many African countries. As an economic-wide relative price signalling for inter-sectoral resource transfers, the RER concept has assumed a central position in debates on economic development and growth strategies (Elbadawi and Soto, 1997).

Cottani *et al.* (1990), for instance, confirm that for some Latin American countries real exchange rate instability has handicapped growth in exports, whereas Asian export growth was for the most part accounted for by real exchange rate stability. Furthermore, they indicate that the weak performance of African agriculture and economic activity in general are partly due to real exchange rate misalignment. Other works by Sekkat and Varoudakis (1998) strengthen the idea according to which the chronic misalignments of real exchange rate are a major factor of the weak economic performances of developing countries.

Capital flows is another major fundamental considered at the empirical level. It is noticed that long-term capital flows is a long-run determinant of the real exchange rate, whereas short-term flows influence the adjustment to equilibrium (Froot and Stein, 1991). Part of the rationale for this is that much of short-term capital flows is speculative and responding to short-term factors. Aron *et al.* (1997) outlined some four factors that complicate the interpretation of the South African capital flows figures, and in part, the long-run and short-run distinction. These include the existence of the disinvestment campaign against South Africa from the 1970s and the imposition of financial sanctions; the classification of sales of assets of an indefinite holding period; and, finally, the debt crisis of 1985.

A number of these studies have focused on RER determination, and on how RER misalignment and RER volatility affect the economy as a whole or particular sectors or sub-sectors. Ghura and

Grennes (1994) examine the impact of RER misalignment on macroeconomic performance in Sub-Saharan Africa. Dordunoo and Njinkeu (1997) investigate the impact of exchange rate regime choice on macroeconomic performance and conclude that what is more important is regime management than regime choice.

Ogun (1998) examines the effect of RER volatility and misalignment on export performance in Nigeria and affirms that they negatively affect export growth. Devarajan (1997) studies the misalignment of the RER in twelve CFA countries prior to, and following the 1994 devaluation. He finds that the RER was highly overvalued in most of these countries before the devaluation, and remained overvalued in a number of countries (especially Cameroon) immediately after the devaluation. But there were huge differences in the degree of misalignment among the countries.

On the relationship between real exchange rate misalignment and economic performances, Edwards (1989) investigated and concluded that real exchange rate difference with regards to its equilibrium level has a negative effect. Cotti and al (1990) found that for some Latin American countries real exchange rate instability has handicapped exportation growth, whereas Asian exportation growth was for the most part accounted for by real exchange rate stability. Furthermore they indicate that the weak performance of African agriculture and economic activity in general are partly due to real exchange rate misalignment.

Sekkat and Varoudakis (1998) strengthen the idea according to which the chronic misalignments of real exchange rate are a major factor of the weak economic performances of developing countries. Ghura and Grennes (1994) show on a panel of African countries that real exchange rate misalignment negatively affects economic growth, exports, investment and saving.

The relationship between RER and economic growth is controversial. For instance, Hseih (1982) examines the time-series implication of Balassa-Samuelson. His study focused on Japan's and Germany's exchange rates vis-à-vis the United States for the 1954-1974 period and he found that productivity differential variables were significant and of the correct sign. Marston (1987), also presents evidence for the Balassa-Samuelson effect. The evidence from later studies is somewhat mixed. Froot and Rogoff (1991) show that, the correlation between productivity and real exchange rate is weak at best. Another storming block is on the effect of RER volatility on economic performance. Dordunoo and Njinkeu (1997) look at the impact of exchange rate regime

choice on macroeconomic performance and conclude that what is more important is regime management than regime choice.

Despite the vital role played by RER in expressing the overall macroeconomic environment of the country, little quantitative work has been carried out on the role and determinants of the RER in Cameroon. Amin (1996) and Amin and Awung (1997) are among the first to empirically address the role of RER in Cameroon. In particular, Amin and Awung (1997) evaluated the determinants of real exchange rate, simulated the path of the equilibrium real exchange rate and evaluated the degree of its misalignment. Using the cointegration methodology, they found that the explanatory variables have only a short-run impact on the real exchange rate. The main problem with their paper is that they failed to explicitly identify the path of the equilibrium real exchange rate. This led to the use of the PPP framework, which they themselves criticised.

Elbadawi and Soto (1997) and Baye and Khan (2002) used the fundamental approach in the determination of equilibrium RER but did not take into account the effect of financial development and FDI on the RER determination. In addition, causality test between RER and economic growth in Cameroon was not conducted in the previous studies. These two gaps are addressed in the present study.

This study therefore pushes a step ahead by taking these variables into account in the first fold and by controlling for other variables and investigating the effect of some variables frequently used in the literature, trade policy and government spending, on RER using Cameroon's data.

5.4 Research methodology

5.4.1 Theoretical Framework

This section examines the inter-temporal model of the determinants of the RER proposed by Rodríguez (1989) and Edwards (1989) and extended in Elbadawi and Soto (1998). The specification of the theoretical model is consistent, at the econometric level, with a co-integration error correction structure, which enables us to separate the short and long-run determinants of the RER and provides us a simple framework for computing its equilibrium level.

Like in Elbadawi and Soto (1998) the illustrative framework employed in this chapter starts by considering an open economy with three productive sectors (importables, exportables and non-tradable goods), for which the international price of traded goods is assumed to be exogenous. The domestic price of tradables, then, is determined by the level of tariffs to importables and exportables and the nominal exchange rate. Let P^*_x and P^*_m be the dollar-denominated international prices of exportables and importables, E the nominal exchange rate, and t_x and t_m the net export and import tax rates, respectively. The domestic price index of tradable goods is defined as:

$$P_T = E[(1 - t_x)P^*_x]^{\alpha}.[(1 + t_m)P^*_m]^{1-\alpha} \quad (5.1)$$

The price of non-tradables, on the other hand, is endogenously determined as the result of the interaction of supply and demand forces in the domestic market. Since there is casual evidence that consumers and the government may have a different propensity to spend in traded and non-traded goods, the demand for the latter is disaggregated in two components. We assume that the proportion of private expenditure allocated to non-tradable goods -denoted by E_{PN}- depends on the prices of exports, imports and non-traded goods (P_x, P_m, and P_n, respectively), while that of the government (E_{GN}) is a fraction (g_N) of total government expenditure. Hence, the latter is a policy or control variable for the government. The total demand for non-traded goods is expressed as:

$$E_N \equiv E_{PN} + E_{GN} = \underset{+}{d_n}(\underset{+}{P_x'}\ \underset{+}{P_m'}\underset{-}{P_n'}).[A - g.Y] + g_N.gY \quad (5.2)$$

where dn(.) is the proportion of private expenditure devoted to non-traded goods, A is absorption, Y is income, and g is the ratio of government expenditures to income. The signs of the price elasticities appear below the dn(.) function. The supply of nontraded goods, which is also specified as a fraction of total income, depends on the prices of tradable and non-tradable goods as shown by the sign of the elasticities below the Sn(.) function:

$$S_N = \underset{- \ - \ +}{s_n}(P_x'\ P_m'P_n')\ Y \quad (5.3)$$

Equation (5.4) sets the equilibrium condition in the non-traded goods market (SN = EN), which in turn determines Pn:

$$s_n(P_x, P_m, P_n) = d_n(P_x, P_m, P_n).\left[\frac{A}{Y} - g.\right] + g_n.\, g \qquad (5.4)$$

Defining the real exchange rate, **e**, as the relative price of traded to non-tradable goods implies:

$$RER = \frac{EP_x^{\alpha} P_m^{1-\alpha}}{P_n} = \frac{EP_x^{*\alpha} P_m^{*1-\alpha}(1-t_x)^{\alpha}(1+t_m)^{1-\alpha}}{P_n} \qquad (5.5)$$

An increase in 'e' in equation 5.5 signifies a depreciation of the RER indicating that the prices of tradable goods rise in relation to the prices of non-tradables, and the reverse when the rate appreciates. Equations (5.4) and (5.5) can be solved for the level of the RER that ensures instantaneous equilibrium in the non-traded goods market, for given levels of foreign and domestic "fundamentals":

$$RER = RER\left(\frac{A}{Y},\ TOT,\ t_x,\ t_m,\ g_N,\ g\right) \qquad (5.6)$$

(+) (?) (+) (+) (+) (?)

where TOT represents the terms of trade (Px*/Pm*). Equation (5.6) implies that higher levels of absorption, trade taxes, and public expenditures on non-traded goods are consistent with a more appreciated RER. The effects of TOT and total government expenditures on the RER cannot be determined a priori; the empirical evidence, however, shows that improved TOT and higher government expenditure usually lead to a RER appreciation. Government expenditure tends to appreciate the real exchange rate, due to the tendency of governments to spend more on non-traded goods than the private sector.

Following Elbadawi (1994) and Elbadawi and Soto (1994), we extend the basic model of equation (5.6) by endogenizing private absorption as a function of net capital inflows (i.e., the sustainable level of current account deficit) and the real consumption rate of interest:

$$\frac{A}{Y} = \frac{A}{Y}\left[\frac{FDI}{Y}.\ (r_t^* + r_\theta) - \mu({}_tRER_{t+1} - RER_t)\right] \qquad (5.7)$$

(+) (-)

FDI in equation (5.7) is a measure of sustainable foreign capital inflows, μ is a parameter, r* is the international real interest rate, r_θ is a measure of the country-risk premium, and ${}_tRER_{t+1}$ is the expected real exchange rate at $_{t+1}$ (based on the information set available at time t), so that

$_tRER_{t+1}$ - RER_t is the expected change in the real exchange rate. Equation (5.7) implies that a rise in sustainable capital inflows allows a higher sustainable level of absorption, while an increase in foreign interest rates, the country risk or the expected depreciation of the RER reduces current absorption through an intertemporal relocation of consumption towards the future (i.e., wealth effects are not dominant). The sovereign risk premium, r_θ, is given by the following expression:

$$r_\theta = (\hat{a}^2_\pi - \hat{a}_{\pi\pi^*} + \beta\hat{a}^2_{RER}) - \hat{a}^2_E \frac{E(m^*+b^*)}{m+b+E(m^*+b^*)} \quad (5.8)$$

where $\hat{a}^2_\pi$ is the instantaneous variance of domestic inflation (π), $\hat{a}^2_{RER}$ is the instantaneous variance of the real exchange rate, $\hat{a}_{\pi\pi^*}$ is the covariance between domestic and foreign inflation, $\hat{a}^2_E$ is the variance of the nominal exchange rate, m and b are the domestic stocks of money and bonds, while m^* and b^* are their international counterparts.

The presence of the expected value of the real exchange rate ($_tRER_{t+1}$) in equation (5.7) yields a forward-looking expression for the equilibrium real exchange rate as a function of the expected path of its fundamentals. Linearizing equations (5.7) and (5.8), solving for RER_t and rearranging, we obtain the following reduced-form dynamic equation for the real exchange rate.

$$LogRER_t - \lambda_t LogRER_{t+1} = \alpha' F_t \quad (5.9)$$

$$\alpha = [\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6, \alpha_7]'$$

Where F_t represents the vector of fundamentals, α is a vector of coefficients and λ corresponds to a combination of μ in equation (5.7) and some coefficients of α in equation (5.9). The model in equation (5.9) can be solved to yield:

$$LogRER_t = \sum_{i=0}^{\infty} \lambda^j \alpha_t' F_{t-j} \quad (5.10)$$

Equation (5.10) shows that in this framework the equilibrium real exchange rate (RER), in addition to clearing the non-traded market in every instant is consistent with the expected long-run evolution of the fundamentals. Equation (5.10) appears in several forms in the empirical

tradition of the RER literature[27]. Following the fundamental approach, F_t could be expressed as follows

$$F_t = [1, Log(TOT_t), Log(g_t), r_t^* + r_{0t}, Log(OP_t), \frac{FDIt}{GDPt}, Log(\frac{PEt}{GDPt})] \quad (5.11)$$

This thesis laid emphasis only on potential effects of two variables which are considered as proxies for fundamentals: OP_t, which is defined as the sum of exports and imports as ratio to the GDP, is used as a proxy for trade policy and PE_t represents public spending considered as percentage of public expenditure to GDP.

As discussed earlier, in order to have an empirical measure of the equilibrium RER, it is necessary to estimate the sustainable path of the fundamentals. In this section, we follow the methodology proposed by Elbadawi (1994) and Elbadwi and Soto (1998), which exploits the time series properties of the variables to get the long-run trajectory of the RER fundamentals, by using a cointegration approach.

5.4.2 Model of Real Exchange Rate

Based on literature in this chapter, a specification similar to the one used by Kaminsky (1988), Ebaldawi (1994) and Ebaldawi and Soto (1998) is employed, but taking into account other essential determinants of RER such as financial development (FD), and foreign direct investment (FDI) which have been neglected in most studies on determinants of RER. The present study however emphasizes on the potential effects of two key fundamentals while controlling for other variables. From the theoretical framework developed in the previous section, the model of long-run cointegrated equilibrium RER can be written as follow:

$$LogRER_t = \alpha' F_t + \mu_t \quad (5.12)$$

Where:

$LogRER_t$ stands for the logarithm of real exchange rate,

α' is is the co-integrating vector of coefficients

F_t represents the vector of fundamentals which includes the logarithm (Log) of;

OP_t = trade openness of the economy measured as a ratio of export plus import to GDP

[27]See for instance, Edwards (1990 and 1998), Elbadawi (1997), and, Mundlak et al (1989)

PE_t= public expenditure (government consumption expenditure to GDP ratio)

TOT_t= the external term of trade (ratio of price index of export to price index of import)

FDI_t= net foreign capital inflow

FD_t= financial development (credit to the private sector as a ratio of GDP)

GDP_t= growth of real GDP

FB_t = foreign borrowing (ratio external debt stock to GNI), and

μ_t is the error term

5.4.3 Variables Description.

Real exchange rate (RER)

The real exchange rate could be defined as the nominal exchange rate corrected for the ratio of the weighted average of import and export prices to the GDP deflator. Following Elbadawi and Soto (1997), the RER measures the relative purchasing power of the countries' currency. Equilibrium real exchange rate is defined in the Edwards model as the relative price of traded and non-traded goods which insures simultaneously the internal and external balances of the economy with underlying capital. Real exchange rate is considered as an endogenous variable and is captured in this study by the ratio of price of tradables to price of non tradables (P_T/P_N) where an increase in the ratio indicates the RER depreciation ($P_T>P_N$) and vice versa.

Level of public expenditure (PE)

Public expenditure increases aggregate demand in the economy and its impact on real exchange rate does not only depend on its level but also on its distribution between tradable and non-tradable goods. Increase in government consumption of non-tradable goods would induce an increase in demand which raise the price of non-tradable goods relative to those of tradable and hence result to a real exchange rate appreciation.

Edwards (1989) finds that an increase in public expenditure induces a real exchange rate appreciation for a set of 12 developing countries. Government final consumption expenditure as a percent of GDP is used to proxy public expenditure. Given that government often spends more on non-tradable than tradable goods, public spending is expected to appreciate the RER as the relative prices of non-tradables will likely increase.

Openness of the economy (OP)

The of degree of openness of an economy considers the relation of an economy with the rest of the world and could be used to capture how trade restrictive policies influence the real exchange rate through their impact on the price of tradable goods. Trade liberalization has to do with reduction or elimination of taxes and other barriers on tradables. Removal of import tariffs allows importers to buy more foreign exchange for the same level of total expenditure, domestic monetary supply will contract which lowers the general prices causes the RER to appreciate in a fixed exchange regime. Reduction of export duties on the other hand reduces the outlay required for a given quantity of exports, renders exports more attractive so that the supply curve shifts to the right and consequently appreciates the RER in a flexible exchange regime. If the exchange rate regime is fixed, the conversion of more foreign exchange into domestic currency will expand money supply, raises the price level and provokes a fall or appreciation in the RER.

The openness variable is taken as the sum of imports and exports as a ratio of GDP (X+M)/GDP. This proxy according to Elbadawi and Soto (1997) takes care of both implicit (use of exchange controls, quotas and import licenses) and explicit (use of tariffs) commercial policy and is expected to have a negative effect on the real exchange rate. Therefore, the more an economy is opened through trade, the more likely the RER of the country is likely to fall (appreciate) irrespective of the regime of the exchange rate while restrictive commercial policy causes the RER to depreciate as it raises duties on tradables, reduces the volume of trade, and thus raises the relative prices of tradables to those of non-tradable goods.

Terms of trade (TOT)

The effect of terms of trade on the RER operates through import and export price variations. If the, terms of trade improve from increment in the world prices of exports, other things remaining equal, the supply of foreign exchange increases. Under a floating exchange rate regime, the supply curve of foreign exchange shifts to the right leading to an appreciation of the RER. In a fixed exchange rate regime, the increased supply of foreign exchange leads to an expansion of the money supply and an increase in the general price level. This causes the RER to appreciate.

A change in the foreign price of imports, on the other hand, may cause the demand curve for foreign exchange to increase or decrease, depending on the elasticities of demand. Hence, the RER may depreciate or appreciate. The relationship between RER and TOT, however, depends on the weight of the income and substitution effects. According to Edwards (1989), the income effect of TOT improvement usually dominates the substitution effect. In this case, an improvement in TOT would lead to an appreciation of the RER. However, if the substitution effect instead outweighs the income effect, an amelioration of TOT would depreciate the RER. Term of trade is captured by the ratio of price index of export to price index of import and a negative relation is hypothesized for the variable.

GDP growth (GDP)

The growth of real GDP of a country has a great impact on country's real exchange rate. In general, an overexpansion in the economy from technological progress increases productivity which helps to lower the prices of tradable goods and may appreciate the RER. This appreciation is achieved by making exports more competitive due to their relatively low prices and improved quality. This effect has been coined in the literature, as the "Ricardo-Balassa effect". Kaminsky *et al.* (1994) equally noted that, economic growth may also increase the demand for non-tradables through a real income effect, and sizable trade deficits. Growth rate of real GDP is expected to appreciate (or negatively influence) the RER in Cameroon.

Foreign Direct Investment (FDI)

Foreign capital inflow is an important source of external financing to a country which increases physical and human capital for recipient households (Yang 2008). Developing countries witnessed constant influx of foreign capital mostly from developed nations, and this increased in financial capital puts upward pressure on recipient countries' local currency[28]. This effect stems from the fact that additional income earned from such investors is mostly consumed, particularly on non-tradable goods and services. Increase in the demand for these goods caused their prices to increase relative to those of tradable leading to appreciation of the real exchange rate. If such funds are channeled through investment on tradable sector, the real exchange rate will instead

[28] See Amuedo-Dorantes and Pozo (2004), Acosta, Lartey, and Mandelman (2007), Lopez, Molina, and Bussolo (2007), Acosta,Lartey, Mandelman, (2007), and Acosta et al, (2009)

depreciate (Lopez, Molina, and Bussolo 2007; Acosta, Lartey, and Mandelman 2007). Appreciation of RER resulting from FDI inflow is analogous to "Dutch disease" dynamics and the hypothesis is expected to hold for the case of Cameroon using FDI inflow as proxy for foreign direct investment.

Financial sector development (FD)

Financial development is an important internal variable that may equally influence the real exchange rate. The test of whether financial sector development induces a depreciation of the real exchange rate is controversial (Acosta *et al*, 2009). The effect of financial development on RER is negative in countries with deeper and more sophisticated financial markets (Saborowski, 2009). However, the effect of domestic credit to the private sector as a proxy for Financial Development on RER depends on whether the credit is used mainly on the tradable or non-tradable sectors. Domestic credit could increase the demand for tradable goods used for investment purposes and the prices of these goods would increase relative to those of non-tradables leading to a depreciation of the RER. Financial development variable is expected to depreciate (raise) the real exchange rate.

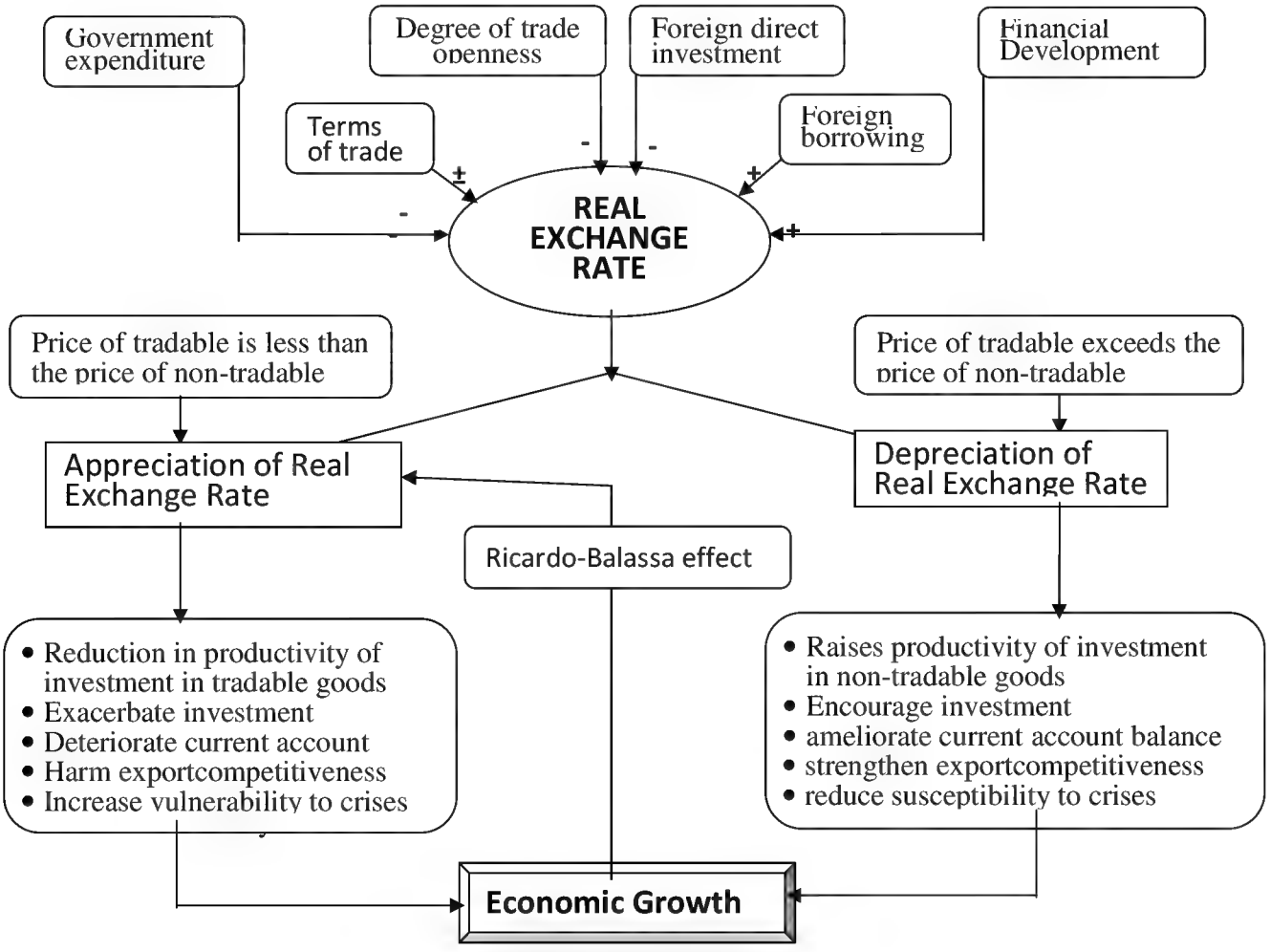
Foreign Borrowing (FB)

Another source of an imbalance in the external accounts is foreign borrowing which leads to an increase in the ratio of external debt to GDP which can likely result to an appreciation of the real exchange rate (Baye and Khan, 2002). This inflow of foreign exchange occurs mainly to the government rather than the private sector, and hence, is likely to be spent more on non-tradables. Increase in total spending on the non-tradable goods of any nature invariably leads to a relative increase in the prices of these goods leading to an appreciation in the real exchange rate. Excessive foreign borrowing leads to the accumulation of long-term debt which is expected to appreciate the real exchange rate, whereas servicing such debts reduces the debt stock ratio and hence leads to real exchange rate depreciation. Foreign borrowing is taken as debt stock ratio and is expected to vary directly with the real exchange rate.

Figure (5.3) summarizes the hypothesized relationships between real exchange rate (RER) and its fundamental variables as well as the possible mechanism through which RER is related to economic growth

Positive signs in this case indicate a situation where the variable in question is raising prices of non-tradable relative to prices of tradable leading to appreciation of real exchange rate. This implies that trade liberal policy or openness appreciates the real exchange rate of the country. This is equally true of government spending as indicated by the '-' sign on the figure.

Figure 5.3: Links between RER, fundamental variables and economic growth



Source: Designed by Author

5.4.4 Data and estimation procedure

Annual time series data used for empirical analysis in this chapter are collected mainly from the World Development Indicators CD-ROM (2011), International Financial Statistics CD-ROM (2010) and World Tables Version 6.2 (1969-2000) and National Institute of Statistics in Yaounde for the period of study which runs from 1977 to 2010.

As a pre-testing procedure, all the variables are tested for unit roots by the Augmented Dickey Fuller (ADF) test and Phillips-Perron test to eliminate any possibility of spurious regression and to verify whether they can be represented more appropriately as difference or trend stationarity processes. Thereafter, the model is investigated by employing cointegration analysis and error correction mechanism of Engle and Granger (1987). A method which consists of first estimating each of the model with Ordinary Least Square and then using ADF test to verify if the error term possesses a unit root or not. If so, then the parameters of ECM are estimated as discussed in chapter three.

5.5 Results and Discussion

5.5.1 Results of Unit Roots Tests

The results of unit root tests obtained by comparing the ADF and PP statistics with the respective Mackinnon critical values at difference significant levels is presented in Table 5.1

The results provided by Eviews 7 econometric software (Table 10) reveals that most of the variables are not stationary in their level form, except the variable for growth rate. However, the variables are all stationary in their first differences. This implies the rejection of the null hypothesis of non- stationary using both approaches at the first difference. These variables suggests that we are dealing mostly with integrated processes of the first order, that is, I(1), after applying the different stationary tests (ADF, PP) at a confidence interval of 1% and 5%. Hence, the risk of using the original Engle-Granger formulation is minimal. To avoid the risk of obtaining dubious regression from specifying RER model in their levels, it is necessary to ascertain whether the variables are cointegrated or not.

Table 5.1: Results of unit root tests using the ADF and PP statistics tests

Variables	ADF level form	ADF first difference	PP level form	PP first difference	Order of integration
Log(RER)	-2.042	-3.889[a]	-2.255	-5.885[a]	I(1)
Log(PE)	-1.322	-4.101[a]	-0.310	-4.004[a]	I(1)
Log(OP)	-1.301	-4.154[a]	-1.048	-4.726[a]	I(1)
Log(FD)	-1.277	-3.332[a]	-1.117	-4.279[a]	I(1)
Log(TOT)	-2.381	-3.154[b]	-1.780	-3.544[a]	I(1)
Log(FDI)	-2.320	-3.198[b]	-3.714[b]	-7.369[a]	I(1)
Log(GDP)	-3.903[a]	-7.522	-3.199[a]	-8.451	I(0)
Log(FB)	-0.919	-2.475[b]	-0.702	-3.801[a]	I(1)
MacKinnon critical values at 1%, 5% and 10% are respectively -3.6496, -2.9558 and -2.6164					

Note that the superscripts [a], [b], [c] indicate variables significantly stationary at 1, 5, and 10% levels of confidence respectively.

Source: By Author

5.5.2 Results of Cointegration Model and the Corresponding ECM of RER

The regression results of cointegration model are presented in Table (5.2). The coefficient estimates of the variable for public spending and variable for trade openness permit us to verify their real effects on the RER in Cameroon. This investigation is tested using Equation 5.12. The empirical results presented in Table 5.2 and 5.3 show that the model is globally significant and has a good explanatory power, as the fit for the regression is good. The fundamental variables explained up to 96.1 percent of long run variations in the RER and 41 percent of the corresponding short-run dynamics model.

For the cointegration regression, the coefficient estimates of trade openness and government spending variables displayed the hypothesized signs. The variable for public spending has the negative sign as expected and it is only significant at a borderline of 10 percent. The Trade openness coefficient displays a negative sign which is significant at 1 percent in explaining long-run variations in the RER. The coefficients of the term of trade and financial development are also significant at 1 percent.

The unit root test on the error correction term is found to be significant at 1 percent and its

coefficient bears the correct negative sign which exceeds two in absolute term. This provides an evidence of strong cointegration relations between the real exchange rate and the aforementioned fundamental variables (especially the PE and OP).

The array of further diagnosis tests of both models (embodied in Table 5.2 and 5.3) indicate that error term is normally distributed and there is absence of heteroscedasticity of error. The residuals equally show no sign of a serial correlation of successive error terms as indicated by the Breusch-Godfrey Serial Correlation LM Test. The null hypothesis with probability less than 0.05 is rejected in all the diagnosis tests embodied in Table 5.2 and Table 5.3. These results imply that, the outcomes of Cointegration and ECM of the RER reported earlier are serially uncorrelated, and normally distributed.

Table 5.2: Results of cointegration regression model of RER in Cameroon.

Cointegration Model Of the Log of Real Exchange Rate- Log(RER)$_t$		
Variables	**Coefficient**	**Std. Error**
C	6.627*** (16.943)	0.391
Log(PE)$_t$	-0.087* (-1.958)	0.044
Log(OP)$_t$	-0.288*** (-5.291)	0.054
Log(FD)$_t$	0.079*** (3.300)	0.024
Log(TOT)$_t$	-0.199*** (-3.120)	0.063
Log(FDI)$_t$	0.0004 (0.057)	0.007
Log(GDP)$_t$	0.019 (1.159)	0.017
Log(FB)$_t$	-0.013 (-0.867)	0.015
Unit root on ECT ADF	**-2.841****	
PP	**-3.550*****	
R-squared	**0.975**	
Adjusted R-squared	**0.961**	
F-statistic	**73.161** (*p=0.001*)	
Jarque-Bera normality test	**0.731** (*p*=0.694)	
White Heteroskedasticity Test	**1.243** (*p*=0.417)	
Breusch-Godfrey LM Test	**0.831** (*p*=0.379)	

Note: ***, **, * indicate significance at the 1, 5, and 10% levels, respectively. Values in parentheses represent the calculated t-statistics and p values are the respective probabilities.

Source: By Author

The residuals of the cointegrated regression possess a unit root at their levels as indicated by the PP and ADF test. This confirms the existence of the Error Correction Mechanism counterpart of the cointegration model. The results of the ECM specification are presented on Table (5.3). The estimation of the short run parameters show that there exist a strong error correction mechanism, through the error correction term. The ECM is globally good with the explaining power of 72.5

percent and F-statistic is significant at 5 percent levels. In the short-run, the effect of trade policy on real exchange rate is negative as expected and significant. The effect of government spending is instead positive and insignificant. Term of trade, financial development, and the error correction term equally have significant effects on the evolution of the RER in the short-run.

The results of the ECM suggest that trade policy has the tendency of causing the RER to appreciate in the short run. This implies that trade openness causes prices of tradables to fall relative to those of non-tradable. The effect of public expenditure is instead positive and insignificant indicating that government spending tends to lower the relative prices of non-tradable in the short-run. The results of this empirical chapter equally suggest that real exchange rate does not react significantly to short run variations in some of its fundamental determinants (FDI, growth rate of GDP, foreign borrowing).

Table 5.3 Results of corresponding Error Correction Model of RER in Cameroon

Error Correction Model of the Log of Real Exchange Rate: $\Delta(LogRER)_t$		
Variables	**Coefficient**	**Std. Error**
C	-0.026 (-1.137)	0.023
$\Delta(LogPE)_t$	0.011 (0.080)	0.134
$\Delta(LogOP)_t$	-0.138* (-2.006)	0.069
$\Delta(LogFD)_{t-1}$	-0.192** (-2.890)	0.066
$\Delta(LogTOT)_t$	-0.118* (-2.305)	0.051
$\Delta(LogFDI)_t$	-0.002 (-0.636)	0.004
$(LogGDP)_t$	0.015 (1.284)	0.012
$\Delta(LogFB)_t$	-0.036 (-1.342)	0.027
ECT_{t-1}	-0.948** (-3.245)	0.292
R-squared	**0.725**	
Adjusted R-squared	**0.412**	
S.E. of regression	**0.018**	
F-statistic	**2.313** (*p= 0.143*)	
Jarque-Bera normality test	**1.414** (*p*= 0.493)	
Breusch-Godfrey LM Test	**0.246** (*p*= 0.793)	

Note: **, * indicate significance at the 5 and 10% levels, respectively. Values in parentheses represent the calculated t-statistics and p values are the respective probabilities

Source: By Author

5.5.3 Evaluation of the Econometric Results

From the empirical results of the real exchange rate model analysed in the previous section, this study reveals that the RER is cointegrated with public expenditure and trade openness variables in addition to other factors and in varying degrees.

Public spending (PE) has a negative and significant effect on the real exchange rate. The negative coefficient of '0.087' is an indication that government spends more on non-tradables than on tradables. The increment in expenditure on the non-tradable goods tends to raise the prices of non-tradables relative to those of tradables. The net outcome of this leads to an appreciation of the real exchange rate. A similar result was obtained in Elbadawi and Soto (1997) and Baye and Khan (2002).

The effect of trade openness (OP) on the real exchange rate is also negative and highly significant. This result signifies that the removal of trade barriers lowers the prices of tradable goods, renders imports and exports more competitive due to their relatively low prices and thus appreciates the real exchange rate. It equally indicates the extent to which restrictive trade policy through the use of exchange controls, quotas and or import duties could be crucial in improving the real exchange rate level in Cameroon. Such policies lower the volume of trade by rendering both tradable goods less attractive thereby inducing the RER depreciation.

Apart from the two main determinants of the real exchange rate, the effect financial development on the RER was equally positive and significant. The implication of this outcome is that credit granted to the private sector, used to capture this variable, could increase the demand for tradables used especially for investment purposes and the prices of these goods would increase relative to those of non-tradables leading to depreciation of the RER. Terms of trade has a negative and significant effect on the RER. This negative relation following Edward (1989) indicates that the income effect outweighs the substitution such that a favourable TOT would tend to appreciate the real exchange rate.

Growth rate of GDP, foreign borrowing stock and FDI have the expected signs but are not very influential in explaining long-run variations in the RER within the period under study. This implies that the so called 'Dutch disease' effect of FDI on RER is not pronounced in Cameroon. These variables are equally insignificant in explaining short-run dynamics in the RER in Cameroon and have the expected signs except the variable for foreign direct investment.

5.6 Conclusion

This chapter attempted to provide decision makers in Cameroon like in other countries of Central Africa Economic and Monetary Community (CEMAC) with optional ways to manage its real exchange rate since she does not use its nominal exchange rate as a policy instrument. This was tackled by investigating the effect of public expenditure and trade openness on the real exchange rate. After exploring some issues on exchange rate arrangements/ misalignment in Cameroon and reviewing the relevant literature on the chapter, we verified the stationarity properties of the data using the Augmented Dickey Fuller and the Phillip-Perron tests.

The results obtained indicate that most of the variables are non-stationary at level form, but stationary at first differences (integrated processes of one "I(1)"). Based on Engle and Granger (1987) test for cointegration, the effect of public spending on real exchange rate is negative and significant. Trade openness variable also has a negative and highly significant effect on the real exchange rate. The two variables have the coefficient of 0.087 and 0.288 respectively in explaining the evolution of the real exchange rate in Cameroon during the period under consideration.

After conducting all the necessary post estimation tests, the resulting Error Correction Model, ECM, does not provide any evidence of significant short run relation between public expenditure and the RER. Only the effect of one key fundamental variable (trade openness) on the RER variation was significant. Although the ECM model was globally significant with the exogenous variables explaining up to 81% of short term variation in the RER, the effect of both variables the RER are negative. The rationale behind this result is that there is always a time lag between the implementation of government spending policy and its overall outcome on general prices of tradables and non tradables upon which, the RER depends. This implies that trade policy is faster in action than public spending in the management of domestic RER.

The result of this chapter suggests that real exchange rate management in Cameroon could require the government to manipulate internally, government spending and trade policy as two essential variables, if she intends to enhance the global competitiveness of the economy. Expansion of public expenditure and liberal trade policy are two important policy options which could be implemented to restore an economy to its long-run equilibrium real exchange rate path

when it is under-valued, with the role of the former being stronger. This implies that, appreciation of real exchange rate could be prevented by contracting public spending or adopting restrictive trade measures especially in the long run. This result provides a special package to policy makers in Cameroon especially as their power to use the nominal exchange rate as a policy option is restricted.

Chapter Six:

IMPLICATIONS OF FOREIGN DIRECT INVESTMENT, FINANCIAL DEVELOPMENT AND REAL EXCHANGE RATE FOR ECONOMIC GROWTH

6.1 Introduction

Many development economists in emerging economies have commonly postulated that the provision of external finance can be an important ingredient to a successful process of economic development if an economy is unable to provide sufficient access to finance on its own (Fischer, 1997; Dornbusch, 1998). Several studies have shown that capital inflows from these external sources appreciate the real exchange rate in emerging markets. A perceived over-valuation of the real exchange rate may lead to capital flows drying up abruptly. Capital inflows have a definite consumption enhancing effect, although the effect on investment is generally indeterminate and might be exacerbated by the resulting real exchange rate appreciation from the inflows of capital to developing economies (Saborowski, 2009).

The experience of a number of developing Countries has shown that the real exchange rate appreciation resulting from Foreign Direct Investment (FDI) inflows may not only discourage investment but can severely destabilize macroeconomic management as a whole (Corden, 1994). The reason is that the real appreciation of the domestic currency brings about a reduction in the profitability of investment in tradable goods. A large real appreciation of a country's currency following excessive capital inflows will harm export competitiveness and lead to considerable current account deterioration and an increasing vulnerability to crisis (Cottani *et al.*, 1990).

Developing the financial sector is a possible way of dealing with the exchange rate appreciation effect of capital inflows rather than merely applying modest capital controls and fiscal tightening policies as suggested in some studies. Saborowski (2009) argued that the development of a deep and active financial sector serves to weaken the problematic link between international capital flows and real exchange rate appreciation. A strong financial sector is capable of providing low cost information about investment opportunities and equally enables the economy to use its

resources more efficiently by facilitating risk diversification and playing a vital role in the mobilization of savings (Acosta, 2007).

Economies with well-developed financial markets are able to benefit more from FDI in promoting their economic growth. Improvement in the efficiency of the domestic financial sector tends to reduce the threshold level of entrepreneurship and increases the social marginal product of FDI. In practice, financial markets affect both the financing of investment and day-to-day business activities. Hence, well efficient domestic financial markets encourage entrepreneurial activities and output, and attract more FDI (Alfaro *et al*, 2004).

The effects of Foreign Direct Investment, Financial Development, and Real Exchange Rate on economic growth could be inferred by examining the evolution of the outcome variable (economic growth) in Cameroon. The trend in economic growth has experienced many changes over time. There are periods of high economic growth and those of considerable economic decline. Rapid economic growth periods in most cases coincide with periods of stable real exchange rate, net inflow of FDI and rapid expansion in bank credits. Economic growth acts as incentive to inflow of foreign capital and the extent to which foreign investors might be willing to invest in a country depends to an extent on the real exchange rate and soundness of host country's financial system alongside other factors.

Based on Cameroon's data, net FDI as a percent of GDP experienced a steady increase from the late 1990s, likewise the ratio of total credit to the private sector, with few exceptions. From the eve of devaluation of FCFA, in the period 1993 to 1994 when the par value FCFA was lowered by 50 percent, real exchange rate declined sharply from 47.85 to -0.67 percent. Real exchange rate changes from 49.44 to 58.77 (that is 283.16 FCFA to 555.2 per unit of US Dollar) and total private credit fell from 10.3 to 9.2 percent of real GDP. With all these, growth rate improves from -3.2 to -2.5 percent from 1993 to 1994. This is an indication that the trend in economic growth determines or is determined by FDI, financial development and RER among other micro and macroeconomic variables.

Establishing a relationship between these variables and economic growth in Cameroon is particularly vital as it will certainly assist in the formulation and attainment of Growth and Employment Strategy Objectives and development goals by 2035. The first focuses of the vision

which has to be achieved between 2010 and 2020 include: reducing poverty to a socially acceptable level, becoming a middle-income country, reaching the stage of newly industrialized country, and strengthening national unity and consolidating democracy (IMF, 2012). According to IMF and GESP, great ambitions of Cameroon emerging by 2035 is only possible if the country raises growth rate to least 5.5 percent on average between 2010 and 2035, reduces poverty to less than 28 percent by 2020, and equally reduces unemployment of 75.8 percent to less than 50 percent by 2020.

Despite the great task lying ahead of us, the world economy was recently trapped down into another severe crisis which injured almost all the sectors of Cameroon's economy. The crisis slowed down the rate of economic growth to less than half of the targeted rate thereby ruining the country's efforts for emergency by 2035. What policies were adopted since the 1980s crisis to sustain a sound economic environment, were all the necessary macroeconomic instruments used accordingly? If the policies were effective and took into consideration the effects of essential macroeconomic variables such as FDI, financial development, the RER and others, then how comes the signals of another external shock just two decades later which manifested itself by continuous decline in real GDP growth rate from 4.5 percent witnessed in 2001 to barely 1.9 percent in 2009 . This pushes us to pose a key question: what are the effects of FDI, financial development and RER on economic growth in Cameroon?

Specifically,

- Is foreign direct investment an important determinant of real GDP growth in Cameroon
- Does financial development (FD) enhance economic growth
- What is the effect of real exchange rate (RER) variations on the growth of real GDP

The objective of this chapter is to assess the implication of FDI, financial development and RER for economic growth in Cameroon using the VECM and ARDL bound testing approaches. Particularly,

- To investigate the contribution of FDI to economic growth in Cameroon
- To determine the link between financial development and economic growth
- To study the effects of RER changes on real GDP growth in the Cameroon economy

Three research hypotheses are obvious from the objective, ceteris paribus:

- FDI contributes positively to economic growth in Cameroon
- Financial development (FD) promotes economic growth
- RER appreciation weakens the rate of economic growth

To verify these hypotheses, the remainder of the paper is organised as follows: Section 2 discusses the evolution of economic growth in Cameroon with reference to our key variables of interest. Section 3 reviews the relevant literature, while Section 4 describes the data and methodology used. The empirical results are presented and analyzed in Section 5, while Section 6 concludes the chapter.

6.2 Evolution of FDI, Financial Development, Real Exchange Rate and Economic Growth in Cameroon

This section examines the trends in the growth rate of real GDP in relation to the evolution of net FDI, private credit (FD) and real exchange rate (RER). At independence in 1960, the country was in great need of development and so the government put in place instruments to promote economic and social development. It is in this light that the five-year development plans were drawn up so as to promote social and economic developments. The whole economy was thus highly planified with the government intervening in practically all sectors of the economy. Until 1985, the economy performed very well with agriculture supporting the economy from 1961 to 1977 and petroleum from 1978 to 1985. This let the economy to be regarded as well managed (Amin, 2002). During this period(1961-1985) Cameroon enjoyed a stable macroeconomic environment and an average growth rate of about 7% and it seemed not to be affected by the external shocks of the 70s and early 80s (Amin, 2002).

The time frame of the evolution of economic growth in this study expands over the last five decades, the long post-independence period during which the country was subjected to numerous constraints, either political or socio-economical. Based on trends in growth rates, the post-independence economic history of Cameroon can be distinguished into five major phases[29]: the period of organization of productive structures (1963 – 1977); the period of sustainable growth

[29]Kobou, Magloire, Fouda and Njinkeu (2002), Amin (2002) and Bernanke (2010)

(1978 – 1986); the period of economic crisis (1987 – 1993); the period of return to growth (1994 – 2004); the period of inherited financial crisis (2005-2010).

The period of organization of productive structures (1963 – 1977)

This period was characterized by high economic growth. Real GDP grew at an average rate of 4.6 percent per annum. This was as a result of higher prices due to increasing demand prevailing then in the world market which stimulated domestic production. The primary sector was not left behind as it accounted for 34 percent of the total value added (average), thus constituting the main source of economic growth in Cameroon (Amin, 1998). More so, the financial sector during this period (1960 to 1985) developed under the umbrella of monetary and regulatory policies aimed at supporting the state planned development strategies. Private investment including FDI to GDP ratio rose from 11 percent to over 19 percent.

The period of sustainable growth (1978-1986)

In this period, the Cameroon government badly needed more revenue to carry out development projects due to the deficits sustained during the 1963–1977 period. Beginning in 1977 with the discovery of more off-shore oil in Cameroon and the production of oil thereafter which provided much of foreign exchange earnings, the pace of income growth increased sharply. Growth during this period was fuelled by the oil boom in the world market. In real terms, the economy experienced an average growth rate of about 10 percent until 1985. During the same period, GDP per capita rose sharply (Benjamin *et al*, 1985).

The period of economic crisis (1986 – 1993)

The sustainable growth period was short-lived, and actually gave way to the 1986 – 1993 period marked by a reversal in economic performance. Cameroon fell into a decade of deep recession which manifested itself in a 4 percent and 6.3 percent decline on average in real GDP and real per capita GDP per year respectively. Thus, the financial sector began to operate with many difficulties as credit to the economy declined. Net FDI inflows remain low throughout the periods. The RER appreciated sharply in the second half of the sub period. This translated into 6 percent decline in the rate of private consumption per capita, representing cumulatively a drop in average per capita consumption of over 40 percent in eight years.

The period of return to growth (1994 – 2004)

Economic activities latter picked up in 1994/95 after eight years period of economic decline, reflecting the joint effects of the 1994 devaluation of the CFA Franc and subsequent trade, fiscal, and macroeconomic reforms, accompanied by an up-turn in world economic activity. Real GDP which had declined by a yearly average of 4 percent, rose by 3.3 percent in 1994/95 and then by 5 percent in 1995/96. Net capital inflow became positive throughout the period, financial credit rose up to 1997. Economic activity remained buoyant in 1996/97. Real GDP growth stabilized at 5 percent in 1997/98 and dropped to 4.2 percent in 1998/99. In 1999, the pace of economic activities slowed down as a result of a decline in world commodity prices. Between 1999 and 2003, real GDP grew from 4.1 percent to about 5 percent on average, reflecting an improvement in government's capacity to mobilize non-oil revenue, increase in investment and other factors.

The period of inherited financial crisis (2005-2010)

This period was marked by a gradual fall in the growth rate of real GDP since 2005 due to the financial crisis provoked in the financial setup of some developed countries which affected the country through trade links. During this period, Real GDP which had been rising since 1999 fell to a yearly average of 3.3 percent, in 2007 and to barely 1.9 percent in 2009 (INS, 2010). Financial development followed a similar trend up to 2007. The RER appreciated up to 2009 and net FDI was less than 1 percent on average.

The following Table (6.1) and figure (6.1) recap the trend of average growth rate of real GDP, FDI ratio, FD ratio and changes in RER in Cameroon for the five distinct growth eras[30].

[30] Trend in the growth rate of real GDP, FDI, Financial Development and RER within the different periods is shown in appendix 6

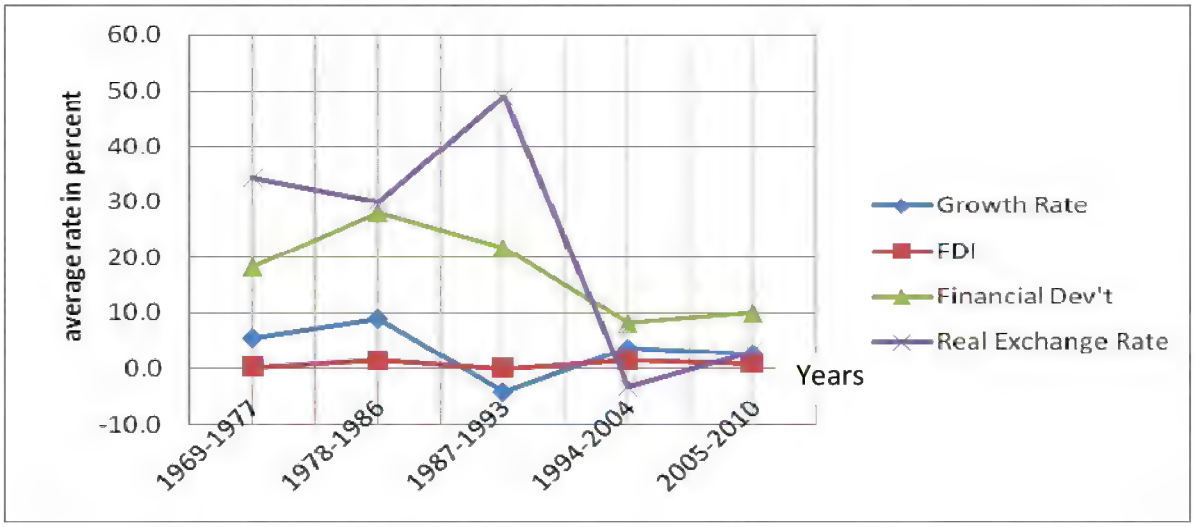
Table 6.1: Evolution of GDP growth rate, FDI, Financial Development and RER in Cameroon 1969-2010

Years / Variables	Annual averages for the period (in percent)				
	1969-1977	1978-1986	1987-1993	1994-2004	2005-2010
Annual growth rate of Real GDP	5.5	8.9	-4.0	3.7	2.7
Net FDI as a percent of GDP	0.3	1.5	0.1	1.4	0.9
Credit to private sector as a percent of GDP	18.2	28.0	21.7	8.2	9.9
Change in RER	34.2	29.9	48.8	-3.2	3.1

Source: computed by the Author using World Bank (2010) and NIS (2011) database

It is observed from figure (6.1) that the growth performance of Cameroon measured by the growth of real GDP declined from period average of 8.9 registered in the sustainable growth era to -4.0 percent in the economic crisis era. The trend rose again to the average rate of 3.7 and later deteriorated gradually to 2.7 percent in the financial crisis era.

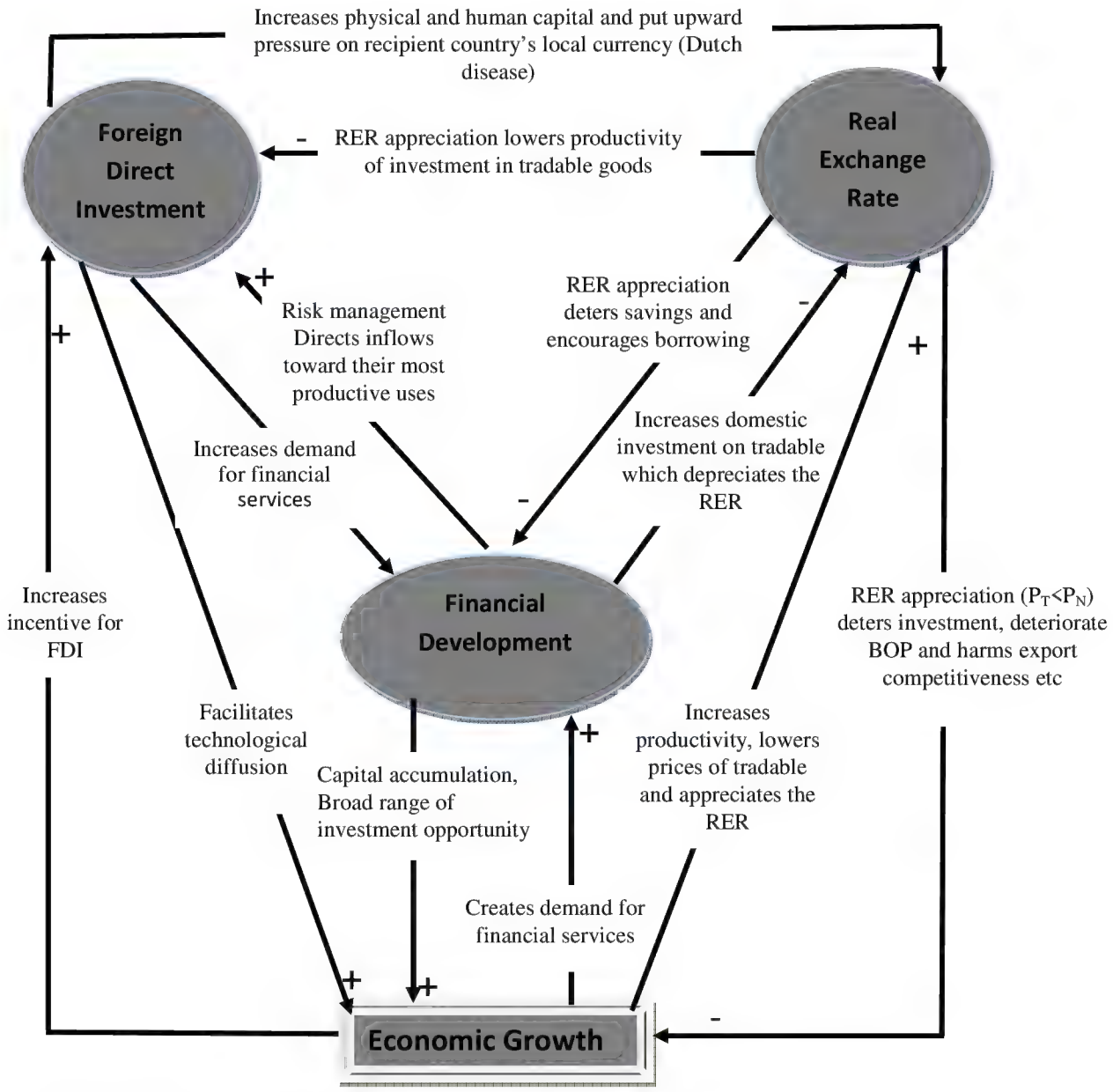
Figure 6.1: Evolution of annual average of growth rate, FDI, Financial Development and RER in Cameroon (1969-2010)



Source: by the Author using world bank (2010) and NIS (2011) database

Based on the period averages presented in figure (6.1), a positive relation could be established between FDI ratio and GDP growth rate in all the periods, and, equally between FD indicator and GDP growth especially for the first three periods. The relationship between RER and economic growth variable is observed as being indirect throughout all the periods under study. This is in line with the hypothesized relationships established earlier. The following figure (6.2) summarized the linkages among the four variables.

Figure 6.2: Possible effects of Foreign Direct Investment, Financial Development, Real Exchange Rate on Economic Growth



Source: Designed by the Author

The signs '+' and '–' show respectively the positive and negative relations between variables. In a nutshell, it is observed from the flow diagram that financial development and, FDI have positive effect on economic growth while the effect of real exchange rate is positive for RER depreciation and is expected to be negative for RER appreciation.

Having gone through the introductory ideas, we are going to review the related literature from which we deduce and empirically verify the hypotheses of the study.

6.3 Literature Review

The first strand of the literature in this chapter focused on the possible linkages among Foreign Direct Investment, Real Exchange Rate and Financial Development. According to Otker-Robe, Polanski, Topf, and Vavra (2007), more efficient financial markets and institutions provide a broader range of investment opportunities and direct investment inflows towards their most productive uses, thereby avoiding the flows of capital from being channeled to sectors where they increase demand without adding to the productive capacity of the economy. The appreciation effect of capital inflows on the real exchange rate (the relative price of non-tradable goods) should therefore be attenuated if financial markets and institutions are well-developed.

Saborowski (2009) used a Behavioural Model of the Exchange Rate that includes different types of capital inflows, interaction terms between the inflow variables and indicators of financial sector development. The results of this study on 84 developing and developed economies for the sample period 1995–2006 show that the real appreciation effect of foreign direct investment on the exchange rate is significantly attenuated if an economy disposes of a deep financial sector as well as large and active stock markets.

Athukorala and Rajapatirana (2003) show that the exchange rate appreciation effect of foreign direct investment inflows has been stronger in the emerging markets of Latin American as compared to their Asian counterparts during the period 1985–2000. The simple reason being that, capital markets in Latin America, despite the intense reform efforts, have remained underdeveloped compared to other regions (De la Torre, Gozzi, and Schmukler, 2007). Spill-over effects emanating from FDI inflows are particularly strong, making their efficient absorption relatively more urgent. Reinhart and Rogoff (2008) use a panel data set to add to this discussion

by showing that throughout history high international mobility of capital has contributed to the recipient economies' vulnerability to financial crises.

Financial markets and institutions play a major role in influencing savings and investment decisions, ameliorate market frictions and allocate resources across space and time (Merton and Brodie, 1995). Financial sector helps to resolve the problem of scarce information about investment opportunities and high information costs which may prevent capital from flowing to its highest value use. The degree to which investors can influence firms equally affects the willingness to invest and to save and also induces managers to improve their efficiency by which resources are handled.

Sekmen (2007), examines the cointegration and causality among foreign direct investment in tourism sector, GDP, and exchange rate volatility in Turkey using VECM and Granger causality test. The study reports one way causality from GDP to FDI and a bidirectional causality between exchange rate volatility and GDP. The adjusted coefficient associated with change in FDI was significant but instead negative while the effect of exchange rate was positive.

One of the dangers associated with large capital inflows in developing countries is the fact that it destabilizes macroeconomic management due to a sizeable appreciation of the real exchange rate. We have come to realize that such problems could be mitigated partly by developing a deep and active financial sector. To avoid any substantial appreciation of a country's currency from net inflow of capital, the economy can take advantage of the inflows' growth enhancing potential without having to make painful policy choices.

The second thread of literature in this section is based on Foreign Direct Investment, Domestic Financial Sector and economic growth. MacKinnon (1973) was of the view that the development of financial markets is necessary and sufficient to foster the adoption of best-practice technologies and learning by doing process. Limited access to credit markets restricts entrepreneurial development. If an entrepreneur adopts new technologies made available by FDI, then the absence of well-developed financial markets limits the potential positive FDI externalities (Alfaro, *et al.*, 2006). This is because a well-functioning financial market lowers the costs of transactions, ensures that capital is allocated to the projects that yield the highest returns, and therefore enhances growth rate.

The economies with well-developed financial markets are able to benefit more from FDI in promoting their economic growth. Improvement in the efficiency of the domestic financial sector tends to reduce the threshold level of entrepreneurship and increases the social marginal product of FDI. In practice, financial markets affect both the financing of investment and day-to-day business activities. Hence, well efficient domestic financial markets encourage entrepreneurial activities and output, and attract more FDI. Although FDI alone plays an ambiguous role in contributing to economic growth as in some studies, Carkovic and Levine (2000) and Alfaro (2002) found that the presence of active and well developed financial markets may alter the results significantly.

Hermes and Lensink (2003) argue that the development of active domestic financial system of the recipient country is an important precondition for FDI to have positive impact on economic growth. The financial system enhances the efficient allocation of resources and helps to improve the absorptive capacity of a country with respect to FDI inflows. Choong, *et al.* (2003) emphasized the role of financial institutions and argued that the lack of development of local financial markets can limit the ability of economy to take the advantage of potential FDI spillovers.

The effect of FDI on the growth rate of the economy is positively associated with the level of financial markets development, that is, the greater the deepening of the financial markets in the host country, the higher will be the effect of FDI on the growth rate of the economy. Alfaro *et al.* (2004) tested and confirmed this hypothesis using bound testing approach of co-integration.

Mello (1999) considered that FDI affects growth through the accumulation of capital as well as by the transfer of knowledge. These hypotheses were tested with time series and panel data. The time series results were not conclusive. The panel data showed that FDI has appositive effect upon growth as a result of the transfer of knowledge in OECD countries. The effect upon the accumulation of capital was only manifested in the non-OECD countries. This indicates that the end result depends on the complementarily or substitution of foreign and domestic investment.

Several results obtained by Lipsey (2000) allow us to infer that the effect of FDI on growth is positive, and depends strongly on the interaction with the level of schooling in the host country. Soto (2000), working with panel data for developing countries for the 1986-1997 period,

concluded that FDI contributes positively to growth through the accumulation of capital and the transfer of technology.

Basu *et al.* (2003) study a panel of 23 developing countries from Asia, Africa, Europe and Latin America, and find the causal relationship between GDP growth and FDI to run both ways in more open economies, and in only one direction, from GDP growth to FDI, in more closed economies. Trevino and Upadhyaya (2003) find a comparable result, based on their study of five developing countries in Asia, that the positive impact of FDI on economic growth is greater in more open economies. Whether other factors, especially the level of financial development and the real exchange rate which directly affect FDI and economic growth, also influence FDI-growth relationship remains an open question.

Examining the relationship between the financial development and issues associated with long-run growth is important. First of all, financial institutions may influence the level of income per capita and the magnitude of cyclical fluctuations (Bernanke and Gertler 1989, 1990). Secondly, many economists stress that understanding the evolution of financial systems is essential for understanding economic development (North 1981; Engerman and Sokoloff 1996).

César and Lin (2002) uses the Geweke decomposition test on pooled data of 109 developing and industrial countries from 1960 to 1994 to examine the direction of causality between financial development and economic growth. He finds that (1) financial development generally leads to economic growth; (2) the Granger causality from financial development to economic growth and the Granger causality from economic growth to financial development coexist; (3) financial deepening contributes more to the causal relationships in the developing countries than in the industrial countries; (4) the longer the sampling interval, the larger the effect of financial development on economic growth; (5) financial deepening propels economic growth through both a more rapid capital accumulation and productivity growth, with the latter channel being the strongest.

Moreover, a well-functioning financial sector is involved in the trading, hedging and pooling of different kinds of risk in the economy. By facilitating risk diversification and effectively providing a broader range of investment opportunities, savings rates and the allocation of available resources can be greatly improved. These arguments are at the core of the idea that

financial development suppresses pressure on real exchange rate appreciation resulting from influx of foreign capital and should be beneficial for economic growth in general.

A good number of studies have examined FDI-growth nexus using cross section data or country's specific data with mix results (Nunnenkamp and Spatz, 2002; Mencinger, 2003; Yélé, 2004; Saha, 2005; Hansen and Rand, 2006; among others). Most studies conducted in domain in Cameroon neglect the causality between FDI and economic growth (Khan and Bamou, 2006, and Njong, 2008). Using error correction mechanism procedure to cointegration, Njimanted (2009) finds that change in the log of FDI is positively related to change in the log of GDP in current period. There is need to complememt these findings with a related study using ARDL approach to cointegration analysis with updated dataset and different measures of the variables.

Although the role of finance was neglected in early literature on development, since the work of Bagehot (1873) and Schumpeter (1911), majority of studies have established a positive link between finance and growth (Goldsmith, 1969; McKinnon, 1973; Shaw, 1973; King and Levine, 1993; Xu, 2000; Levine *et al.*, 2000; Ghirmay, 2004; Habibur, 2007)[31]. A bulk of this research is concentrated mainly on developed countries. In Cameroon, for instance, very few studies are devoted for finance-growth debates (Tabi, Njong and Neba, 2011). With the outbreak of recent financial crisis by 2007 which slowed down the real GDP growth rate of Cameroon by more than two percent (IMF, 2012), issues on finance-growth nexus deserve a particular attention especially in formulating policies for the vision of emerging by 2035 to be attained.

Many studies find that real exchange rate misalignments particularly RER appreciation weakens the general economic performance (Edwards, 1989; Cotti *et al,* 1990; Sekkat and Varoudakis, 1998; Ghura and Grennes, 1994). Little quantitative work is based on a relation of this nature in Cameroon. The few studies on real exchange rate in Cameroon concentrate on investigating the determinants of RER and or degree of RER misalignment (Amin, 1996; Amin and Awung, 1997; Baye and Khan, 2002).

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[31] These studies are in line with supply-leading hypothesis (Patrick 1966) unlike demand-leading hypothesis which posits causality instead from economic growth to financial development (Gurley and Shaw, 1967; Goldsmith, 1969; Neusser and Kugler 1996; Luintel and Khan, 1999; Odhiambo, 2004; Ang and Mckibbin, 2005; Odhiambo, 2007).

A very negligible number of studies in economics literature integrate foreign direct investment, financial development, real exchange rate and economic growth (Acosta *et al.*, 2009 and Saborowski, 2009). For the case with Cameroon, we have not yet found an empirical study on the effects of FDI, financial development and RER on economic growth. The present study is intended to fill this vacuum especially as recommendations from the study are certainly helpful in preparing growth and employment strategy paper (GESP) and equally in formulating better growth-led policies in the country.

6.4 Data and Methodology

Macroeconomic data used in this study are solely Cameroon's data obtained from secondary sources spanning from 1977 to 2010. Data for FDI, real GDP, and real exchange rate are constructed using data from the World Development Indicators, WDI, CD-ROM (2011). Financial Development data are obtained from the IMF International Financial Statistics CD ROM (2010). Most of these data are made complete with data from the National Institute of Statistics 2011 (NIS) in Yaoundé.

Empirical analysis adopted in this chapter is based on the ARDL modeling approach as in Shrestha and Chowdhury (2005) and Jarita (2006), and Johansen cointegration techniques (Sekmen, 2007). The maximum likelihood based Johansen cointegration method used in this study permits us to develop tests based on the number of cointegration vectors. Unlike the Engle and Granger cointegration test, ARDL modelling like VECM has become popular due to its flexibility as it can be applied when the variables are of different order of integration (Pesaran and Smith, 1999). The approach equally takes sufficient numbers of lags to capture the data generating process in a general-to-specific modelling framework (Shrestha and Chowdhury, 2005). Moreover, a dynamic error correction model (ECM) can be derived from ARDL through a simple linear transformation which integrates the short-run dynamics with the long-run equilibrium without losing long-run information.

Borrowing from the methodology of Jarita (2006) and Sekmen (2007), like in other related studies, the methodology adopted in this chapter is presented in three steps. The first step involves testing the stationary properties of the variables through unit root tests. The second task is to test for cointegration relationship between variables using the OLS based ARDL approach

and maximum likelihood based Johansen cointegration techniques, and the last step consists of conducting causality test between the variables.

Unit roots property of various series is verified to eliminate any possibility of spurious regression and to verify whether they can be represented more appropriately as difference or trend stationarity processes. This is so because macroeconomic time-series data are usually non-stationary (Nelson and Plosser, 1982) and are thus prone to fallacious regression. In line with many other studies, including those of Ghirmay (2004) and Yousif (2002), two separate methods are employed for the stationarity test. The first is to conduct an augmented Dickey-Fuller test (Nelson *et al.* 1982) by carrying out a unit root test based on the structure in (1):

$$\Delta \mathbf{X_t} = \kappa + \rho \cdot t + \theta_i \cdot X_{t-i} + \sum_{i=1}^{n} \varphi_i \cdot \Delta X_{t-i} + \varepsilon_t \qquad (6.1)$$

Where;

X is the variable under consideration, Δ is the first difference operator, t captures time trend, ε_t is a random error, and n is the maximum lag length. The optimal lag length is identified so as to ensure that the error term is white noise. If we cannot reject the null hypothesis $\theta = 0$, then we conclude that the series under consideration has a unit root and is therefore non-stationary. In addition to the Dickey-Fuller test, we perform the Phillips-Perron test (Phillips, 1987; Phillips-Perron, 1988), using a non-parametric correction to deal with any correlation in error terms.

The second phase consists of estimating the Vector Autoregression (VAR) process. The procedure has frequently been a popular choice as a description of macroeconomic time series data because the VAR model is flexible, easy to estimate, and usually gives a good fit to macroeconomic data. The possibility of combining long-run and short-run information in the data by exploiting the cointegration property is probably the most important reason for which the VAR model continues to receive the interest of both econometricians and applied economists.

Following Pesaran *et al.* (2001), we assemble the vector autoregression (VAR) of order p, denoted VAR (p), for the following economic growth function:

$$Z_t = \mu + \sum_{i=1}^{p} \beta_t z_{t-i} + \varepsilon_t \qquad (6.2)$$

Where Z_t is the vector of dependent variable defined as growth of real GDP (RGDP), z_{t-i} is the vector matrix which represents a set of explanatory variables (foreign direct investment, financial development, and real exchange rate and others including the lagged term of dependent variable), t is a time or trend variable, p is the maximum lag length, μ is the intercept and ε is the error term.

We further developed a vector error correction model (VECM) as in Jarita (2006) and Sekmen (2007) as follows:

$$\Delta Z_t = \mu + \alpha_t + \lambda Z_{t-1} + \sum_{i=1}^{p-i} \gamma_t \Delta Y_{t-i} + \sum_{i=1}^{p-1} \gamma_t \Delta X_{t-i} + \varepsilon_t \qquad (6.3)$$

Where Δ is the first-difference operator, Y_{t-i} is the dependent variable and X_{t-i} is vector of independent variables. The longrun multiplier matrix λ is given as:

$$\lambda = \begin{bmatrix} \lambda_{YY} \lambda_{YX} \\ \lambda_{XY} \lambda_{XX} \end{bmatrix}$$

The diagonal elements of the matrix are unrestricted, so the selected series can be either I(0) or I(1). If $\lambda_{YY} = 0$, then Y is I(1). In contrast, if $\lambda_{YY} < 0$, then Y is I(0).

The VECM procedures described above are imperative in the testing of at most one cointegrating vector between dependent variable and a set of regressors. The model displays the normalized cointegrating vector and the error correction models involving $\Delta LnRGDP_t$, ΔFDI_t, $\Delta LnFD_t$ and $\Delta LnRER_t$ as dependent variables. The coefficient attached to each variable in the cointegrating regression is the adjusted parameter with associated t-values. Trace correlation which is similar to the conventional R^2 in linear regression model is equally calculated to verify the goodness of fit of the model and for the various equations.

Autoregressive Distributed Lag (ARDL) modelling approach to cointegration analysis is equally used in this study. It is similar with VECM procedure but instead with unrestricted intercepts and no trends. This approach does not involve pre-testing variables, which means that the test on the existence relationship between variables in levels is applicable irrespective of whether the underlying regressors are purely I(0), purely I(1) or mixture of both (Jarita, 2006). Pesaran *et al.* (2001) advocated the use of the ARDL model for the estimation of level

relationships because the model suggests that once the order of the ARDL has been recognised, the relationship can be estimated by OLS and equally, the technique is suitable for small sample size.

Basically, the OLS based ARDL bound testing approach to cointegration involves estimating the conditional error correction version of the following ARDL model (adapted from Jarita, 2006 and Noula, 2012) for economic growth and its determinants:

$$\Delta Ln(RGDP)_t = \delta_0 + \delta_1 Ln(RGDP)_{t-1} + \delta_2 Ln(FDI)_{t-1} + \delta_3 Ln(FD)_{t-1} + \delta_4 Ln(RER)_{t-1} + \delta_5 Ln(OP)_{t-1} + \delta_6 Ln(LFQ)_{t-1} + \delta_7 Ln(STR)_{t-1} + \delta_8 Ln(INDR)_{t-1} + \delta_9 Ln(GOV)_{t-1} + \sum_{i=1}^{p} \phi_i \Delta Ln(RGDP)_{t-i} + \sum_{i=0}^{p} \theta_i \Delta Ln(FDI)_{t-i} + \sum_{i=0}^{p} \lambda_i \Delta Ln(FD)_{t-i} + \sum_{i=0}^{p} \varphi_i \Delta Ln(RER)_{t-i} + \sum_{i=0}^{p} \eta_i \Delta Ln(OP)_{t-i} + \sum_{i=0}^{p} \psi_i \Delta Ln(LFQ)_{t-i} + \sum_{i=0}^{p} \beta_i \Delta Ln(STR)_{t-i} + \sum_{i=0}^{p} \gamma_i \Delta Ln(INDR)_{t-i} + \sum_{i=0}^{p} \sigma_i \Delta Ln(GOV)_{t-i} + \upsilon_t \quad (6.4)$$

Where;

Δ is first-difference operator and p is the optimal lag length,

Ln(RGDP) represents natural log of real GDP growth,

LnFDI is the natural log of foreign direct investment,

Ln(FD) is an indicator of financial development in natural logarithm,

Ln(RER) is real exchange rate in natural logarithm,

Ln(OP), Ln(LFQ), Ln(STR), Ln(INDR) and *Ln(GOV)* stand for natural logs of trade openness, quality of labour force, level of infrastructural development, rate of industrialization and public spending respectively.

Equation (6.4) indicates that economic growth tends to be influenced and explained by its past values. The structural lags are established by using minimum Akaike's information criteria (AIC). From the estimation of VECMS and UECMs, the long-run elasticities are the coefficient of one lagged explanatory variable (multiplied by a negative sign) divided by the coefficient of one lagged dependent variable (Bardsen, 1989). The short-run effects are captured by the coefficients of the first-differenced variables in equation (6.4).

After estimating the ARDL equation (6.4), the Wald F- test is computed to verify the long-run relationship between the concerned variables. The Wald test can be carry out by imposing restrictions on the estimated long-run coefficients of economic growth, FDI, FD, RER, OP and other variables included in equation (6.4). The null hypothesis for no cointegration of variables in equation (6.4) is stated as;

H_0: $\delta j = 0$ (no cointegration relationship) where j= 1, 2, …, 10.

Against the alternative hypothesis

H_1: $\delta_j \neq 0$ (existence of cointegration relationship)

The *F*-test has a non-standard distribution which depends on (i) whether variables included in the model are I(0) or I(1), (ii) the number of regressors, and (iii) whether the model contains an intercept and/or a trend. Given a relatively small sample size in this study of 41 observations, the critical values reported by Narayan (2004) based on small sample size between 30 and 80[32] will be used alongside with those of Pesaran *et al.* (2001). The test involves asymptotic critical value bounds, depending whether the variables are I(0) or I(1) or a mixture of both. Critical values for the I(1) series are referred to as upper bound critical values, while the critical values for I(0) series are referred to as the lower bound critical values.

The computed *F*-statistic value will be evaluated with the critical values tabulated in Pesaran *et al.* (2001) and Narayan (2004). According to these authors, the lower bound critical values assumed that the explanatory variables x_t are integrated of order zero, or I(0), while the upper bound critical values assumed that x_t are integrated of order one, or I(1). Therefore, if the computed *F*-statistic is smaller than the lower bound value, then the null hypothesis is not rejected and we conclude that there is no long-run relationship between economic growth and its determinants. Conversely, if the computed *F*-statistic is greater than the upper bound value, then growth and its determinants share a long-run level relationship. On the other hand, if the computed *F*-statistic falls between the lower and upper bound values, then the results are inconclusive.

[32]Pesaran and Shin (1999) and Pesaran et al. (2001), however, generated critical values based on 500 and 1000 observations and 20,000 and 40,0000 replications, respectively, which is suitable for large sample size.

If there is evidence of cointegration relationship of the variables, the following ARDL model is estimated:

$$Ln(RGDP)_t = \alpha_1 + \sum_{i=1}^{p} \phi_{1i} Ln(RGDP)_{t-i} + \sum_{i=0}^{p} \beta_{1i} FDI_{t-i} + \sum_{i=0}^{p} \theta_{1i} Ln(FD)_{t-i} + \sum_{i=0}^{p} \lambda_{1i} Ln(RER)_{t-i} + \sum_{i=0}^{p} \eta_i Ln(OP)_{t-i} + \sum_{i=0}^{p} \psi_i Ln(LFQ)_{t-i} + \sum_{i=0}^{p} \beta_i Ln(STR)_{t-i} + \sum_{i=0}^{p} \gamma_i Ln(INDR)_{t-i} + \sum_{i=0}^{p} \sigma_i Ln(GOV)_{t-i} + \mu_t \quad (6.5)$$

The orders of the lags in the ARDL model are selected by the Akaike Information criterion (AIC), before the selected model is estimated by ordinary least squares. Although, Pesaran and Shin (1999) recommended a maximum of 2 lags for annual data, the lag length that minimizes SBC is often selected (Jarita, 2006).

The ARDL specification of the short-run dynamics can be derived by constructing an error correction model (ECM) of the following form:

$$\Delta Ln(RGDP)_t = \alpha_2 + \sum_{i=1}^{p} \phi_{2i} \Delta Ln.(RGDP)_{t-i} + \sum_{i=0}^{p} \theta_{2i} \Delta Ln.(FDI)_{t-i} + \sum_{i=0}^{p} \lambda_{2i} \Delta Ln(FD)_{t-i} + \sum_{i=0}^{p} \varphi_{2i} \Delta Ln(RER)_{t-i} + \psi ECM_{t-1} + \vartheta_t \quad (6.6)$$

Where ECM_{t-1} is the error correction term, defined as

$$ECM_t = Ln(RGDP)_t - \alpha_1 - \sum_{i=1}^{p} \phi_{1i} Ln(RGDP)_{t-i} - \sum_{i=0}^{p} \beta_{1i} Ln(FDI)_{t-i} - \sum_{i=0}^{p} \theta_{1i} Ln(FD)_{t-i} - \sum_{i=0}^{p} \lambda_{1i} Ln(RER)_{t-i} \quad (6.7)$$

All the coefficients of short-run equation are coefficients relating to the short run dynamics of the model's convergence to equilibrium and ψ represents the speed of adjustment. The short-run effects are captured by the coefficients of the first-differenced variables in equation (6.6). The equation is first estimated and then, the Wald test (F-statistic) is computed to differentiate the cointegration relationship between the concerned variables. Normality test based on skewness and kurtosis estimates of the residual is also examined to ensure normality of the error terms.

Finally, a causality test using standard Granger-causality approach is conducted to verify the direction of causality among our four main variables of interest. The Granger causality test

examines whether or not past changes in one variable (X) help to explain current changes in another variable (Y), over and above the explanation provided by past changes in itself. If this is true, then one can conclude that X Granger causes Y otherwise it does not Granger cause. That is to examine, whether at a given level of significant the hypothesis that one of the variables does not Granger causes the other is rejected or not.

Causality between different variables can be examined in the following three ways (Zachariadis, 2006 and 2007): (i) By observing the significance of the lagged difference of the variables in the abovementioned equations through a joint Wald test or F-test, which is a measure of short-term (or weak) Granger causality, (ii) By reviewing the significance of the error-correction term in the above equations as a measure of long–term causality. (iii) By testing the joint significance of the error correction term and the lagged variables in each VECM variable through a joint Wald or F-test, sometimes mentioned as a measure of strong Granger causality (Oh and Lee, 2004)

In order to test for direct short run causality between any pair of variables, for instance, the natural logs of foreign direct investment (LnFDI) and economic growth (LnRGDP), we perform a pairwise Granger causality test by estimating equations (6.8) and (6.9):

$$LnRGDP_t = \gamma + \sum_{i=1}^{p} \alpha_i LnRGDP_{t-i} + \sum_{i=1}^{q} \beta_i \cdot LnFDI_{t-i} + \mu_t \qquad (6.8)$$

$$LnFDI_t = \phi + \sum_{i=1}^{p} \delta_i \cdot LnRGDP_{t-i} + \sum_{i=1}^{q} \lambda_i \cdot LnFDI_{t-i} + \eta_t \qquad (6.9)$$

Where $LnRGDP_t$ and $LnFDI_t$ are stationary time series sequences, γ and ϕ are the respective intercepts, μ_t and η_t is white noise error terms, and, p and q are the maximum lag length used in each time series. The optimum lag length is identified using Hsiao's (1981) sequential procedure, which is based on Granger's definition of causality and Akaike's (1969, 1970) minimum final prediction error criterion. If in equation (6.8), $\sum_{i=1}^{k} \beta_i$ is significantly different from

zero, then we conclude that FDI Granger causes RGDP. Similarly, if $\sum_{i=1}^{k}\delta_i$ in equation (9) is significantly different from zero, it implies that real GDP Granger causes FDI. Granger causality in both directions is, of course, a possibility. This procedure is repeated to verify the direction of Granger causality between the main variables under study.

6.5 Presentation and discussion of Results

The methodology presented in the previous sections permits us to estimate the VAR model where all the variables under study are included in the model as endogenous series. The choice of this model stems from the fact that, it possibly combines long-run and short-run information in the data by exploring the cointegration property, and it usually gives a good fit to macroeconomic data (Johansen and Juselius, 1994). The model is very dynamic and provides us with a short and easy way of verifying the implications of Foreign Direct Investment, Financial Development and, Real Exchange Rate for economic growth in Cameroon. Following this methodology, the results of unit root tests is first presented, followed by results of cointegration tests (ARDL and VECM) and those of pairwise Granger Causality tests.

6.5.1 Results of the Unit Roots Tests

The order of integration of variables is checked because ARDL-bounds test approach depends on the time series characteristics of the data set. Although both I(0) and I(1) variables can be used in the ARDL approach, the variables must not be I(2) stationary because, in the presence of I(2) variables the computed F-statistics provided by Pesaran *et al.* (2001) and Narayan (2004) are not valid as the bound test is based on the assumption that the variables are I(0) or I(1). Therefore, the implementation of unit root tests in the ARDL procedure is necessary in order to ensure that none of the variables is I (2) or higher.

The results of the Augmented Dickey-Fuller test and Philip Perron test at the level form and at first difference are presented in Table 2.

Table *6.2*: *Results of the Augmented Dickey-Fuller and Philip Perron Unit Roots Tests*

Unit Roots Tests		**LnRGDP**	**LnFDI**	**LnFD**	**LnRER**	**LnQLF**	**LnOP**	**LnSTR**	**LnGOV**
ADF	Level form	-1.61	-2.32	-1.28	-2.04	-1.09	-1.30	-4.25[a]	-1.32
	First difference	-2.60	-3.20[b]	-3.33[b]	-3.89[a]	-3.59[a]	-4.15[a]	-5.52	-4.10[a]
PP	Level form	-1.67	-3.71[b]	-1.12	-2.26	-1.44	-1.05	-5.55[a]	-0.31
	First difference	-3.85[a]	-7.37[a]	-4.28[a]	-5.89[a]	-4.19[a]	-4.73[a]	-8.55	-4.00[a]
Order of integration		***I(1)***	***I(1)***	***I(1)***	***I(1)***	***I(1)***	***I(1)***	***I(0)***	***I(1)***

Notes: [a], [b] indicate variables significant at 1% and 5% respectively. The conclusion is based on the results of both tests with the only exception being LnRGDP whose conclusion is drawn only from PP unit roots test.

Source: Computed by the Author

The results revealed that the natural logs of Foreign Direct Investment (FDI), Financial Development (FD) indicator, Real exchange rate (RER), Trade Openness (OP), government spending (GOV) and real GDP growth are stationary at 1% level after differencing once. But, the result of infrastructural development (STR) is significantly stationary at the level form. This means that FDI, FD, RER, OP, GOV and RGDP variables are integrated of order I(1) and STR variable is integrated of the order I(0).

6.5.2 Results of Cointegration Test and Short-run Causality Test

Cointegration relationship is tested using ARDL framework and the VECM cointegration procedure while short-run causality is verified using the standard Pairwise Granger Causality test.

6.5.2.1 Results of ARDL bound testing cointegration relationship

From Table 6.2, we observe that variables are a mixture of both I(0) and I(1), we then verify whether Wald F- statistic exceeds their respective upper critical values to conclude for the existence of a long-run relationship between the variables or not. The results of bound test for the case of unrestricted intercept and no trend is presented in Table (6.3). The result of Wald F-

statistics of Autoregressive Distributive Lag (ARDL) bound testing for cointegration relation and the respective upper and lower bounds critical values as computed by Pesaran *et al.* (2001) at 1, 5 and 10 percent are reported in Table (6.3). It is observed from the table that the calculated Wald F-statistics (4.29) is greater than the upper bound critical value of Pesaran *et al.* (2001) at 1 percent level of significance as 4.29 is greater than 3.97. This implies that the null hypothesis of no cointegration cannot be accepted at 1 percent and therefore, there is a strong long-run cointegration relationship between economic growth and the independent variables

Table 6.3: Wald F-statistic of bound testing for level of cointegration relationship

Wald test statistic	Value	*k*	Significance level	*Bound Critical values of Pesaran et al. (2001)*		
				I(0)	I(1)	**Decision**
			1%	**2.65**	**3.97**	Longrun relation
F-statistic	**4.29**	**9**	5%	**2.14**	**3.30**	Longrun relation
			10%	**1.88**	**2.99**	Longrun relation

Notes: Computed F-statistic of 4.29 is significant at 1% when compared with the Critical Values from Pesaran and Shin (2001) as in the appendix. **k** stands for the number of regressors

Source: Computed by the Author (see appendix 8 for detail)

Since there is evidence of long-run relationship (cointegration) between variables, we proceed with the estimation of the ARDL model. The results reported in Table 6.4 indicate that the model is globally significant and has a good explanatory power of 76.9 percent. The effect of financial development on real GDP is positive and highly significant. The effect of FDI on economic growth is positive but insignificant. The effect of real exchange rate on real GDP growth is equally significant but negative indicating that real exchange rate appreciation enhances long run growth of real GDP in Cameroon. Level of industrialization, quality of labour force, and, government spending are identified as other important correlates of real GDP in Cameroon.

Table 6.4: Estimation of ARDL model of economic growth in Cameroon

Dependent Variable: Natural Log of real GDP ($LnRGDP_t$)		
Independent Variables	**Coefficient**	**Std. Error**
Constant	5.894*** (7.601)	0.775
Log of Foreign Direct Investment (**$LnFDI_t$**)	0.021 (1.287)	0.016
Log of Real Exchange Rate (**$LnRER_t$**)	-0.189** -(2.288)	0.083
Log of Financial development (**$LnFD_t$**)	0.277*** (5.140)	0.054
Log of Infrastructural Development (**$LnSTR_t$**)	0.018 (1.259)	0.014
Level of industrialisation (**$LnINDR_t$**)	0.209* (2.017)	0.104
Log of Quality of Labour Force(**$LnQLF_t$**)	0.176* (1.813)	0.097
Log of Trade Openness of the economy (**$LnOP_t$**)	0.155 (1.320)	0.117
Log of Government Expenditure(**$LnGOV_t$**)	0.199* (1.956)	0.102
Unit roots test on ECT (PP)	**3.436****	
R-squared	**0.853**	
Adjusted R-squared	**0.769**	
F-statistic	**10.13** *(p=0.0001)*	
Jarque-Bera Normality Test	**1.129** *(p=0.569)*	
Breusch-Godfrey LM Test	**0.218** *(p=0.807)*	
White Heteroskedasticity Test	**0.616** *(p=0.795)*	
Ramsey RESET Test	**2.297** *(p=0.143)*	

Notes: the superscript***, ** and *indicate variables significant at 1%, 5% and 10% respectively. Values in parentheses represent the calculated t-statistics and p values are the respective probabilities

Source: By Author

The error term following the ADF test is negative, possesses a unit roots at the level form and exceeds two in absolute term to confirm the existence of the Error Correction Model for the growth regression. The results of error correction model for economic growth model reported in Table 6.5 indicate that real exchange rate is an important growth promoting factor in the short

run. The estimate coefficient of the RER is positive as expected and significant indicating that the real exchange rate depreciation enhances growth of real GDP in Cameroon. The effect of FDI on growth is negative as postulated by the dependency theory. The coefficient of financial development is insignificant and does not bear the right sign. Level of infrastructural development, government expenditure, and quality of labour force are equally important in contributing to growth. The model is globally significant with explanatory power of about 70 percent.

Further diagnostic tests applied to the two models (presented in Table 6.4 and 6.5) report no evidence of serial correlation, Heteroscedasticity and ARCH (Autoregressive Conditional Heteroscedasticity) effect in the error terms. The models also pass the Jarque-Bera normality test which suggests that the errors are normally distributed. The lagged error correction term (ECT_{t-1}) in the error correction model is negative and significant at 1 percent level indicating evidence of causality in at least one direction. The coefficient of "-0.586" indicates high rate of convergence to equilibrium.

Table 6.5: Error correction model of economic growth in Cameroon

Dependent Variable: Change in the natural Log of real GDP- ($\Delta LnRGDP_t$)		
Variables	**Coefficient**	**Std. Error**
C	-0.014 (-0.755)	0.0185
$\Delta(LnFDI_{t-1})$	-0.003 (-0.918)	0.004
$\Delta(LnRER_{t-1})$	0.081* (2.041)	0.040
$\Delta(LnFD_{t-1})$	-0.131 (-1.597)	0.082
$LnSTR_t$	0.016* (1.951)	0.008
$\Delta(LnINDR_t)$	-0.080 (-1.827)	0.044
$\Delta(LnQLF_t)$	0.385* (2.081)	0.185
$\Delta(LnOP_t)$	-0.103 (-1.782)	0.058
$\Delta(LnGOV_t)$	0.401** (3.090)	0.130
Lagged error correction term (ECT_{t-1})	-0.586** (-2.430)	0.241
R-squared	**0.893**	
Adjusted R-squared	**0.699**	
Durbin-Watson stat	**2.184**	
F-statistic	**4.613** *(p=0.053)*	
Jarque-Bera Normality Test	**0.434** *(p=0.805)*	
ARCH Test for heteroscedasticity	**0.025** *(p=0.878)*	
Breusch-Godfrey LM Test	**1.118** *(p=0.434)*	
Ramsey RESET Test	**1.414** *(p=0.369)*	

Notes: the superscript ** and * indicate variables significant at 5% and 10% respectively. Values in parentheses represent the calculated t-statistics and p values are the respective probabilities
Source: By Author

6.5.2.2 Results of Johansen Likelihood test for cointegration and cointegrating vectors

Following Johansen (1992), the vector error correction modeling technique to cointegration is used in all the cases irrespective of the order with which variables are integrated, unlike the Engle

and Granger (1987) test which can be used only when the variables are integrated of the same order. The results of maximum likelihood based Johansen cointegration test (Trace test) and those of resulting normalized VECM connecting our four variables of interest are presented in Table (6.6) and (6.7) respectively. Trace test for number of cointegrating relations in Johansen cointegration framework is conducted by comparing likelihood ratio which gives longrun test statistics with critical values of Osterwald- Lenum (1992). In conducting this test, we assume no deterministic trend in the series and uses two lags in levels which is specified as 1 to 1.

Results of Johansen test following the likelihood ratio reported in the second column of Table 6.6 indicate four cointegrating equations at 5 percent significant level. The results equally report three cointegrating relations at 1 percent as the various Trace test statistics (likelihood ratio) exceed the respective critical values.

Table 6.6: Results of Trace test for cointegrating relations

Series: Δ(LnRGDP) Δ(LnFDI) Δ(LnFD) Δ(LnRER)				
Lags interval: 1 to 1				
	Likelihood	5 Percent	1 Percent	Hypothesized
Eigenvalue	Ratio	Critical Value	Critical Value	No. of CE(s)
0.638	69.98	39.89	45.58	None **
0.439	38.46	24.31	29.75	At most 1 **
0.394	20.52	12.53	16.31	At most 2 **
0.148	4.97	3.84	6.51	At most 3 *

Notes that: * and ** denotes rejection of the null hypothesis of no cointegration at 5 and 1% significance level respectively.

Source: By Author

From the results of the Johansen cointegration test, the cointegrating vector is then identified by some arbitrary normalization. The results of normalized cointegrating relation are reported in Table 7 which assumes only one cointegrating relation.

The results VECM reported in Table 6.7 indicates that, the adjusted coefficient associated with the financial development equation bears the positive sign indicating that increase in the efficiency of the financial sector in allocating credit to the private sector contributes to GDP

growth. From the adjusted coefficient for the RER, we conclude that, there exist a negative between the RER variations and growth rate in Cameroon. This is an indication that RER appreciation does not really slows down the rate of economic growth as earlier perceived. The coefficient of FDI is positive and significant meaning that FDI promotes economic growth.

Table 6.7: Results of Vector Error Correction Estimates

Dependent Variable: Change in Natural Log of of Economic growth (ΔLnRGDP)			
Independent variables	**ΔLnFDI**	**ΔLnFD**	**ΔLnRER**
Adjusted parameter	**0.164** *(0.078)*	**0.201** *(0.167)*	**-0.136** *(0.179)*
Coef. of Determination (R^2)	0.81	0.18	0.58
F-statistic	27.389	1.430	9.00

The numbers in parentheses under the estimated coefficients are the asymptotic standard error (detail of this result is presented in appendix **7a**).

Source: By Author

6.5.2.3 Results of Causality Tests

The test consists of rejecting the null hypothesis (H_0) of no causality when the probability of the F-Statistics is less than 10 percent. The results of the tests for the direction of causality between growth rate (RGDP), foreign direct investment (FDI), financial development (FD) and real exchange rate (RER) is presented in Table (6.8). The hypothesis that real GDP does not cause FDI is accepted, and the hypothesis that FDI does not cause is real GDP is equally accepted. Therefore, Granger causality does not exist between FDI and real GDP. Another result of Granger causality test is for FD and real GDP. The null-hypothesis, FD does not Granger Cause GDP growth, cannot be rejected but the hypothesis, GR does not Granger cause FD, is rejected. Therefore, one-way causality runs from real GDP to FD which is in line with demand-following hypothesis. Another evidence of causality is noticed from RER to real GDP which is highly significant.

Table 6.8: Results of pairwise causality test

Direction Of Causality	F-Statistic	Probability	Decision
LnRGDP => LnFDI	0.191	0.668	Accept Ho
LnFDI => LnRGDP	0.004	0.950	Accept Ho
LnFD => LnRGDP	1.797	0.190	Accept Ho
LnRGDP => LnFD	3.635*	0.066	Reject Ho
LnRER => LnRGDP	20.809***	0.0001	Reject Ho
LnRGDP => LnRER	0.623	0.436	Accept Ho

Superscripts (***) and (*) denote significance at 99 and 90 percent confidence level respectively.

Source: computed by Author

These results imply that changes in real gross domestic product can significantly provoke a change in the financial development but the reverse is not true. Unidirectional causality from the real exchange rate to real GDP further support the hypothesis that evolution of the real exchange rate explains changes in economic growth as noticed earlier but growth of real GDP does not cause significant changes on the RER movement.

6.5.3 Interpretation and evaluation of econometric results

The empirical results of the Johansesn Cointegration test presented in Table (6.6) reveal that, real GDP, foreign direct investment, financial development and Real exchange rate are cointegrated as the Likelihood ratio statistics for the various equations exceed their respective critical values at 5 percent levels of significant. This is in line with the results of the ARDL cointegration relationship reported in Table (6.3) and (6.4).

Based on the results of the ARDL and VEC Estimates, the adjusted coefficients associated with the financial development, and, foreign direct investment bears the correct positive signs. The coefficient estimate for the RER is positive as hypothesized only in the short run but instead negative in the long run. The results of the ARDL model reveal that, the coefficient of financial development is significant at the 1 percent level. This is sufficient to reject the null hypothesis and accept that there exist a long-run positive relationship between total credit channeled to the

private sector and growth of real GDP in Cameroon. This indicates that financial policies or reforms have to be put in place to increase the efficiency of the financial sector in allocating credit to the private sector and thus enhance their contribution to economic growth.

The development of the financial sector brings about higher growth in GDP through their contribution to both capital accumulation and the process of technological innovation. The former lowers transaction cost, reduces magnitude of cyclical fluctuation, identifies and screen credit worthy firms and provides low cost information on investment opportunities thereby leading to GDP growth.

From the adjusted coefficient for the RER, we conclude that, there exist short run positive and significant relationship between the RER variations and growth rate in Cameroon. The relationship is instead negative and equally significant in the longrun That is, the variable is significant at the 5 percent level which justifies the rejection of any "no cointegration" hypothesis. This is an indication that RER appreciation could really slows down the rate of economic growth as it lowers productivity of investment in tradable goods, deteriorates the current account, harms export competitiveness and increases vulnerability to crises in the short run as earlier perceived, but not in the long run. Thus, policies to accelerate economic growth should control for overvaluation of RER in the short run as a means of rendering a country more internationally competitive.

The coefficient of FDI is positive but insignificant in both the ARDL model and VECM despite the fact that the equation has an explaining power of 81 percent in the VECM. This implies that FDI is not significantly cointegrated with real GDP in Cameroon. From the theoretical standpoint, we feel that FDI promotes economic growth by facilitating technological diffusion, increasing competitiveness of domestic firms and increasing potential to generate employment but the empirical findings of this study has not found any strong support for the theory. The insignificant relationship between FDI inflow and real GDP could be explained by the fact that despite all the efforts made to attract foreign investments to Cameroon, the ratio of net FDI to GDP remains relatively very low (less than 5 percent on average).

6.6 Conclusions

This is the last empirical chapter of the thesis which intends to study the implications of foreign direct investment (FDI), financial development (FD) and the real exchange rate (RER) for economic growth in Cameroon. We started by briefly looking at the trend of economic growth in Cameroon, explored some literatures around the issues and then presented and analysed the empirical results. It was noticed that the trend of growth rate in Cameroon was increasing up to the mid-1980s, became negative for over five years due to crises, but latter ameliorated toward 1995 though at a slower rate.

Empirical analysis is based on Cameroon's data for 1969-2010 period published by World Bank, IMF, and NIS-Yaoundé. Regarding the unit root properties of time series data, all the variables are at least stationary with the first difference following Augmented Dickey Fuller and Phillip Perron tests. The Autoregressive Distributed Lag and Vector Error Correction Modelling techniqnes are applied to examine the cointegration relationship among the economic growth, FDI, financial development and RER. The Wald F statistic of ARDL model is greater than upper bound critical value at 1 percent and likelihood ratios of Johansen test are greater than the respective critical values at 5 percent levels of significant which is sufficient to reject the "no cointegration" hypothesis for the variables.

The effects of FDI and that of financial development are positive with the explaining power of 81 percent and '18 perecnt respectively. RER has a positive and significant impact on growth in only in the short run. This implies that growth of GDP in Cameroon can be fostered by preventing real exchange rate appreciation in the short run as well as developing the financial landscape of the economy with a view to expanding credit to the private sectors. According to the findings of this study, policies relating FDI to economic growth should be taken with a lot of caution because no significant relation is established between the two variables (i.e. FDI and economic growth). In addition to our key variables, availability of skilled labour, government expenditure and level of industrialization also contribute to economic growth in Cameroon.

Given the fact that there is still much debate regarding causality relation between direct investment and GDP growth, financial sector development and GDP and real exchange rate and GDP, Granger-causality test is used to examine the pairwise causality between the variables. The

results of causality between economic growth and FDI show that no significant causality exists in both directions. The test reports a unidirectional causality from real GDP to financial development and equally a one-way causality from real exchange rate to real GDP.

The one-way causality from real exchange rate to real GDP growth is not surprising because the devaluation of FCFA in 1994, for instance, lowered the nominal exchange rate and caused the RER to depreciate. This alongside with other factors, succeeded to get the economy out of recession. In addition, financial development entails increment in private credit which promotes growth by financing massive investment. Moreover, as an economy expands, there is a greater need for financial service as difference sectors of the economy demand credit for obvious reasons. With this, the bidirectional causality between financial development and economic growth is very conceivable though the results of this study have reported only one-way causality from GDP growth to financial development.

Chapter Seven:

GENERAL CONCLUSION AND POLICY IMPLICATIONS

7.1 Introduction

The main objective of this thesis was to investigate the implications of foreign direct investment, financial development and real exchange rate for economic growth using time series data for Cameroon (1977-2010). To attain this objective, four research questions were posed which led to the specification and estimation of four difference econometric models as in chapters three, four, five and six.

In response to the first research question on the effects of host economy's market size and macroeconomic stability on foreign direct investment (FDI), bound testing approach and Engle/ Granger cointegration test were conducted. The second research question on the role of financial liberalisation and gross investment on financial sector development was handled by estimating a two-step least squared cointegration technique of Engle and Granger. To assess the importance of trade policy and government spending in the management of the real exchange rate (RER) in Cameroon, the fundamental approach of the equilibrium RER determination elaborated in Elbadawi and Soto (1997) and Baye and Khan (2002) was employed. Finally, Johansen cointegration technique (VECM and ARDL models) and pairwise standard Granger causality test were used to investigate the impact of FDI, financial development (FD), and RER on economic growth.

The research objectives and research hypotheses were theoretically investigated in the conceptual framework section of the study. We used three different flow diagrams to theoretically establish and verify the respective transitional mechanisms for the various hypotheses. A comprehensive flow diagram was then used to summarize the various potential channels through which FDI, FD and RER affect Economic Growth. It suggested a positive relation between FDI and economic growth, FD and growth and equally a positive a priori effect of the RER on economic growth. The research hypotheses were empirically verified using unit roots tests, cointegration tests, and

causality tests, accompanied with a series of post-estimation diagnostic tests. The results of these tests are recapitulated in the subsequent section.

7.2 Highlights of main results

This thesis came up with a number of findings, after the various concepts and literature developed on this topic were explored. The econometric results of the study were presented and analyzed in the various empirical chapters. The ADF and the PP tests unit root test were performed to study the stationarity properties of the data and the order of integration. The results obtained show that, most of the variables used in the four empirical chapters are non-stationary at level form, but stationary at first differences (integrated processes of I(0) or I(1)). This implies that, the risk of obtaining dubious regression in our empirical analysis was minimized. The results of the Breusch-Godfrey Serial Correlation LM test, the Jarque-Bera normality test, the ARCH test, and, other diagnostic tests implied that the models were correctly specified. That is, the residuals of various models are serially uncorrelated, normally distributed and homoskedastic.

In the first empirical chapter (chapter three), the results of Engle and Granger cointegration test and those of Autoregressive Distributed Lag (ARDL) modeling (bound test) showed that there was a strong long-run relation between foreign direct investment and its determinants. The residual term of the regression equation was negative and stationary at the level form. Wald F-statistic was equally significant at 5 percent to further support the cointegration relationship between market size, economic stability variable and foreign direct investment inflows to Cameroon.

Related to the first hypothesis of the study, the results revealed that, local market size has a highly significant positive force in attracting foreign direct investment (FDI) to Cameroon, especially in the longrun. The rate of inflation in the domestic economy used in measuring the extent of economic instability equally influenced FDI inflows negatively and significantly, indicating that macroeconomic stability obviously affects FDI inflow positively. Evidence of short-run relation was reported and only macroeconomic stability was significant. One-way short-run causality was noticed from Market size to FDI. Following the test of weak exogeneity, strong long-run causality is found between the main variables (market size and economic

stability) and FDI inflow to Cameroon. This indicates that market size (MS) and economic stability (MES) cause foreign direct investment inflows to Cameroon in the long run.

In the second empirical chapter of the study, residual based cointegration test was applied to investigate the effect of financial liberalization and gross investment on financial development using Cameroon's time series data from 1977 to 2010. We started by exploring an overview of financial development in Cameroon, followed with the review of related literature. The results of cointegration test revealed a strong long-run correlation between financial development and its determining variables as the residual term was negative and significantly stationary at the level form.

Specifically, we observed that gross investment significantly promotes financial development in the long-run and also in the short-run. The effect of financial liberalisation on financial development was highly significant in both short- and long run but positive only in the short run. Results of short run causality reported unidirectional causality from financial liberalisation to financial development. The test of weak exogeneity equally indicates a strong support of long-run causality between these variables and financial development in Cameroon.

We investigated the effect of public expenditure and trade policy on the real exchange rate (RER) by estimating the equilibrium RER in Cameroon. We started by discussing the exchange rate arrangements and misalignment in Cameroon followed by reviewing the relevant literature on the real exchange rate. It was noticed that the real exchange rate in Cameroon was misaligned intermittently with years of the real exchange rate undervaluation (example, 1974 and 1980) and overvaluation (1983 and 1985) simply because Cameroon's membership of Franc Zone restricts it from implementing nominal exchange rate (NER) as a policy option.

The cointegration test results depicted that public spending negatively (appreciative effect) and significantly determined the evolution of RER in Cameroon. Public spending causes the RER to appreciate by raising demand and hence the relative price of non tradables. The effect of trade policy (trade openness) was equally found to be negative and very significant. Trade liberalisation provokes the appreciation of the real exchange rate by reducing or eliminating taxes and other charges on import and export which increases the volume of trade and instead lowers the relative price of non- tradable compared to those of tradable. Both variables therefore have

the tendency of pushing the relative prices of non-tradable above those tradable goods leading to the RER appreciation. The effects of these variables were not very important in the short-run especially the variable for public expenditure though the specification was globally significant.

The last empirical chapter of the thesis was designed in response to the fourth research question. We investigated the implications of foreign direct investment (FDI), financial development (FD) and the real exchange rate (RER) for economic growth in Cameroon by first exploring the trend of economic growth in Cameroon and the related literature. We employed Johansen cointegration test (VECM specification of the VAR model) and ARDL modeling technique to investigate the correlation among the four variables using Cameroon's dataset from 1977-2010. The results revealed that FDI has a positive but insignificant impact on economic growth in Cameroon. The role of financial development was equally positive and highly significant. The effect of the RER on economic growth was significant but positive as expected only in the short run, indicating that a rise in the RER which is interpreted as RER depreciation enhances growth in the short run.

Granger-pairwise-causality test was also conducted to determine the direction of Short run causality between the four variables. It was found that one-way highly significant causality runs from real exchange rate to real GDP growth. Another meaningful unidirectional causality was equally noticed from real GDP to financial development and not in the reverse direction. The only possibility of no causality in both directions was reported between FDI and real GDP.

7.3 Conclusion

The results of the study outlined in the preceding sections are in line with the major research hypotheses. The market size hypothesis and macroeconomic stability hypothesis hold in Cameroon. Market size of the host economy measured by annual growth of per capita GDP has a positive and highly significant effect on the FDI inflows in Cameroon especially in the long-run. The implication of this outcome is that market size of the host economy is an important factor for market-seeking FDI. The effect of macroeconomic instability captured by percentage change in consumer price index on FDI is negative and highly significant in the short run than in the long-run. We therefore conclude that there exist a long-run positive relationship between the market size and the inflow of FDI as well as between macroeconomic stability and FDI inflow.

The second research hypothesis was also verified. Gross investment rate has a positive sign as hypothesized. The variable is highly significant in explaining variations in total credit to the private sector (financial development) in the long-run. The variable for financial liberalisation positively and significantly contributes to financial development in the short run. The effect of financial liberalisation is instead negative and significantly correlated with financial development in the long-run. This brings us to the conclusion that, there exist a positive short run and negative longrun relationship between financial liberalisation and total credit to the private sector in Cameroon.

With reference to the third research hypothesis, the effects of government spending and that of trade policy are highly significant in explaining long-run variations in the RER in Cameroon. Both variables affected the RER negatively. This implies that liberal trade policy and government spending tend to raise the prices of non-tradables relative to those of tradables leading to an appreciation of the RER.

The fourth hypothesis of the study was only partially realized. On like the effect of financial development and that of the RER which were highly significant, the effect of FDI on economic growth was not significant as expected. The effect of financial development was positive and significant, and, the effect of RER on economic growth was positive and equally significant as hypothesized in the short run. The effect of FDI was not significant though it bears the expected positive sign. The result is probably due to the fact that Cameroon's net FDI to GDP ratio is relatively very low (barely 0.3% between 1969 and 1977 and, 0.9% between 2005 and 2010)[33]. According to Nunnenkamp *et al.* (2002), foreign direct investment to GDP ratio in Cameroon is lower than the sub-Saharan Africa average, and is even much lower than the average for all low-income countries. Cameroon is thus judged as being less competitive in attracting FDI to the economy.

7.4 Recommendations

Based on the results of this thesis which tresses the fundamental role of financial development, real exchange rate, and to a lesser extent, foreign direct investment on the growth of real GDP in Cameroon, the following policy recommendations are suggested. The suggestions stem from

[33] See Table 6.1 for detail

three perspectives. That is, policy implications emanating from financial development, real exchange rate and foreign direct investment.

To achieve the great ambitious programs of higher economic growth and prosperity, policies should be designed to encourage gross investment in Cameroon in order to increase the efficiency of the financial sector in allocating credit to the private sector leading to financial development.

The ongoing financial liberalization process in the country should only be encouraged in the short run. It should not be promoted in the long run as a means to increase the mobilization domestic resources to the private sector. The results of this thesis have not found any positive effect of the reform policy on private credit in the longrun. This is probably because the financial systems are not sufficiently developed so as to permit long run significant increases in level financial flows after the reform. Financial liberalisation could be fostered in the short run by freeing interest rates and allowing financial innovation, reducing directed and subsidized credit, as well as allowing greater freedom in terms of external flows of capital. These reform measures should not however be adopted in the long run as it might likely induce excessive risk-taking and expose the economy to more frequent crises.

Exchange rate policy is long cited as a necessary and significant part of an economic policy package to foster economic growth. Trade restrictive policy should be implemented and public expenditure on non-tradables should be reduced to prevent the RER appreciation, which goes a long way to promote growth. A reduction in government demand for non-tradables tends to lower the prices of non-tradables relative to those of tradables leading to RER depreciation.

Policy makers could also avoid RER overvaluation which is very frequent in Cameroon by implementing restrictive external trade policy through the use of exchange controls, quotas and or import licenses. These policies lower the volume of trade by rendering both importables and exportables less attractive. The RER depreciates as duties on import and or export tend to raise their prices relative to those of non-tradables.

Another important policy suggestion is in relation to the results obtained for foreign direct investment (FDI). In an attempt to render Cameroon a more attractive FDI destination, domestic market size should be expanded by encouraging economic integration, promoting economic

growth and stimulating income generating activities as a means of increasing the GDP per capita of the citizens.

Macroeconomic stability should equally be maintained by controlling the general price level, exchange rate volatility, and ensuring political stability coupled with improvement on infrastructure and quality of labour force. This will create a more investment-friendly environment capable of attracting reasonable FDI inflow to the economy of Cameroon especially as the country is a bilingual nation, strategically well located among the CEMAC countries and has the most developed industrial base within the sub-region. These suggestions could render Cameroon more competitive in attracting FDI, large enough to significantly facilitate technological diffusion, increase competitiveness of domestic firms and generate employment leading to growth.

In a nutshell, financial sector should be developed by expanding credits to the private sector to promote GDP growth through capital accumulation, technological innovation and screening/ financing of massive investment projects. RER appreciation should be prevented with the aim of fostering economic growth by adopting restrictive trade policies as well as reducing public expenditure on non-tradable goods. Policies geared toward increasing FDI inflow as a means of stimulating GDP growth in Cameroon should be reformulated since no significant relation is established between FDI and economic growth. These policies shall help to reduce unemployment and poverty in the economy, raise the rate of economic growth to the target (minimum of 5.5 percent on average) necessary to attain the vision of emerging by 2035.

7.5 Suggestions for further research

The study emphasizes only on the implications of foreign direct investment, financial development and real exchange rate for economic growth in Cameroon ignoring the aspect of economic development and other important determinants of economic growth at both micro and macro level. The major shortcoming of this work was the relative short length of the data. We do not have data for most variables in the 1960s as intended. Data non-availability and inconsistency for some variables such as those for the proxy of infrastructural development posed a serious problem. We equally had problems with the measurement of different variables. Financial development, for instance, is captured by private credit ratio and so does not consider other

aspect of the financial market. The study employs the Engle and Granger cointegration technique, ARDL bound testing and VECM econometric procedures which like other methods of empirical analysis have their shortcomings.

Much research is thus needed in the future to amend or supplement the present work by taking care of these drawbacks. Specifically, a research work is needed with a longer span that will enable the full exercising of different lag in the ARDL model. A similar study may equally be conducted while using different indicators in capturing variables such as financial development, FDI, and or the RER to verify whether the choice of the indicators used has an influence on the results. Different econometric technique could as well be used to test the validity of the VECM and ARDL approaches used in this study. The same procedure could be used to examine the effects of different potential endogenous variables on FDI, Financial development and Real exchange rate rather than the ones considered in this thesis. A similar study could well be carried out using data from a different country or countries of the Franc Zone.

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APPENDIX

Appendix 1: Unit Roots Tests

1. Dickey-Fuller and Augmented Dickey-Fuller statistical test

a) Dickey-Fuller test (DF)

The Dickey – Fuller test allows us to put to evidence the stationary character of series by determining a stochastic drift. The models that serve as the bases for the construction of these tests are in the number of three:

$X_t=\rho X_{t-1} + \varepsilon_t$ ….. …. (i) First order autoregressive model or AR (1)

$X_t=\rho X_{t-1} + b + \varepsilon_t$……. (ii) Autoregressive model with constant term.

$X_t=\rho X_{t-1} + b_t + \varepsilon_t$ …….. (iii) Autoregressive model with trend.

The principle of this test is as follows: if the $\mathbf{H_o}$ hypothesis ($\boldsymbol{\rho=1}$) is accepted in any of the three equations, then, the process is not stationary.

The test is carried out in a sequential manner beginning from the third equation. The significance of **b**in equation **(iii)** is tested using the t-statistics. If **b** is significantly different from zero, then we test in this same model for the coefficient of **ρ**, that is,

Ho: ρ=1

H_1: ρ<1

If **Ho** is accepted, then the series is non stationary with trend; if not ($\mathbf{H_1}$is accepted) the series is stationary. $\mathbf{H_1}$is accepted if and only if $\boldsymbol{t\rho \geq t_{tabulated}}$.

On the contrary, if **b** is significantly equal to zero, we move directly to equation **(ii)** and carry out the same test following the same procedure, right up to the test of the first equation. If $\mathbf{X_t}$ is not stationary, the DF test can be applied on the differenced variables following the same procedure as previously outlined. In the three equations above, $\boldsymbol{\varepsilon_t}$ is the error term.

b) The Augmented Dickey-Fuller (ADF)

The augmented DF test is based on the alternative hypothesis **($\rho = 0$)** stemming from the least square estimation of the following equations:

$$\Delta X_t = \rho X_{t-1} + \sum_{j=2}^{p} \Phi_j \Delta X_{t-j} + \varepsilon_t \qquad \textbf{(iv)}$$

$$\Delta X_t = \rho X_{t-1} + \sum_{j=2}^{p} \Phi_j \Delta X_{t-j} + b + \varepsilon_t \qquad \textbf{(v)}$$

$$\Delta X_t = \rho X_{t-1} + \sum_{j=2}^{p} \Phi_j \Delta X_{t-j} + b_t + c + \varepsilon_t \qquad \textbf{(vi)}$$

The test is carried out in a similar manner as the DF test. Only the statistical tables differ. The value ρ of the lags is determined with the aid of the Akaike and Schwarz criteria.

2. Phillip- Perron test

This test is constructed on a non parametric correction of DF statistics in order to take into account errors of heteroscedasticity; it is done in two steps:

Firstly, the estimation by least square method of the three basic equations of the DF test and the calculation of associated statistics

Secondly, the estimation of the corrective factors established from the structure of a covariance from the errors of the model previously estimated in such a manner, that the transformations carried out drive to distributions identical to that of standard DF test.

Appendix 2: Cointegration Tests

1. Engle and Granger test of cointegration

According to Engel and Granger, two series are co integrated when their linear combination is stationary. Co integration translates the fact that the linear combination does not deviate for a long period from its mean value even if the series present diverging evolutions. In other words, that there exist a stable long term evolution between the series

Two series X_t and Y_t are co integrated of the order d, b for $0 < b \leq d$, if

X_t is integrated to the order d and Y_t integrated to the order b. There exist (α, β) such that $Z_t = \alpha X_t + \beta Y_t$ is integrated to the order (d-b) or I(d-b). In practice, we generally limit ourselves to d = b = 1 and in this case, Z_t will be stationary or I(0) and will convey an equilibrium relationship between X_t and Y_t.

The Engel and Granger methodology of long-term estimation is carried out by using the standard ordinary least squares (OLS) which is applied to the variables in level form to establish the order of integration for particular combinations of co integrating variables. Estimates of the residual errors e_t are obtained as follows:

$e_t = X_t - \alpha - \beta Y_t$

The null hypothesis (H_o) that e_t has a unit root and therefore is a random walk, is tested against H1 using the DF and ADF test. If the errors are white noise, it can then be given an error correction model.

2. Johansen Test Procedure

The co integration by Johansen permits the development of tests based on the number of co integration vectors. The estimation of the maximum likelihood of complete information of Johansen is based on a vectorial autoregressive (VAR) system. This approach, by the method of maximum likelihood permits us to obtain all the cointegration vectors[34] in a multivariable framework, in such a way that it looks more appropriate when we want to test the level of cointegration in a system of many variables.

Consider the model: $Z_t = \theta_1 Z_{t-1} + \theta_2 Z_{t-2} + \text{---} + \theta_k Z_{t-k} + \xi_t$

Where, Z is a multi-dimensional process. This model can be rewritten thus:

[34] Contrary to the the Engel-Granger approach which takes into account only a single co-integration relationship.

$$Z_t = \Gamma_1 D(Z_{t-1}) + \Gamma_2 D(Z_{t-2}) + \text{---} + \Gamma_{k-1} D(Z_{t-k}) + \theta Z_{t-k} + \mu + \xi_t$$

The test developed by Johansen is based more precisely on the order of the matrice θ. It envisages 3 cases:

- The matrix θ, has an order of zero (0), the vector Z is stationary. In this case, the system can be estimated without any particular attention as concerns its stationarity.
- The matrix θ has a complete order (p); there is no linear combination of the components of Z, which are stationary. It is therefore necessary to differentiate the components of Z.
- The matrix θ has an order of n, where $0<n<p$. There exist therefore the matrices $(p^*n)\alpha$ and β, such that $\theta = \alpha\beta$, where α is the adjustment matrix and β the co integration vector.

The estimation of the maximum likelihood of the co integration vector (β) is obtained by solving the system, which permits us to obtain the proper values and their associated vectors. After that, it will then be possible to construct a test for the proper value and the test of trace.

The test of the proper value, test the presence of n vectors of co integration against the alternative that there exist n+ 1 vector. The test statistics is given as:

$$VP_{max} = -T\log(1-\lambda_{n+1})$$

On the other hand, the test of trace test the null hypothesis $r \leq q$, against the alternative that $r > q$. The test statistics is given as: $TR = -T \sum \log(1-\lambda_i)$

- If $r = 0$, implies there exist no co integration relationship, hence the series Z_t is stationary but the variables are not co-integrated.
- If $r = n$, the series Z_t is not stationary and there exist no co integration relationship between the variables.
- If $0 < r < n$, then the series Z_t is co integrated to the order r and there exist therefore r relations of co-integration. An error correction model (ECM) can then be estimated.

We are going to apply both methods in our analysis. Since the method of Engel-Granger does not give the order of co integration, we will use Johansen method to determine this order.

Appendix 3: Causality Test Procedure

a) Granger causality test

Granger (1969) defines causality between two variables Y and X as follows;

Y causes X if the predictability of X increases when Y is taken into consideration. The procedure used for the test of causality is that of the P-order vector autoregressive representation.

$$Y_{1t} = C_1 + \Pi_{11}(L)\, Y_{1t-1} + \Pi_{12}(L)\, Y_{2t-1} + \mu_{1t}$$

$$Y_{2t} = C_2 + \Pi_{21}(L)\, Y_{1t-1} + \Pi_{22}(L)\, Y_{2t-1} + \mu_{2t}$$

Where c_1 and c_2 are constants and Πij represent polynomials of order $p\text{-}_1$. L is the lag operator. As such, Y_{2t} does not Granger cause Y1t when the null hypothesis (H_o) is accepted, that is, if the polynomial $\Pi_{12}(L) = 0$. Likewise, Y1t does not Granger cause Y_{2t} when the polynomial $\Pi_{21}(L) = 0$. This formulation supposes that the variables are stationary.

Granger (1988) also showed that when the series are integrated of order 1, the model is underspecified and the causality test can lead to false conclusions.

b) Johansen and Juselius causality test

On like, the causality test of Granger that limits itself only to the direction of causality in the short run, the method of Johansen and Juselius (1994) is used to establish the long run causality between variables. This method consists of estimating the error correction model (ECM) of the following form in order to put into evidence the existence of a long run cointegration relationship.

$$\Delta Y_t = \sum_{i=1}^{n} b_t \Delta Log Y_{t-1} + \sum_{i=1}^{n} a_j \Delta Log X_{t-j} - \beta_t \varepsilon_{1t-1} + \mu_{1t}$$

The test consists of testing the significance of the residual ε_{1t-1} to show the existence of a cointegration relationship using an error correction model. As such if estimated βi is statistically significant, then we can confirm the existence of a long run causality link going from X to Y. Also, the sign of βi must be negative for an error correction mechanism to exist.

Appendix 4: Tests for Autocorrelation, Heteroscedasticity and Normality of Errors

a) Test for autocorrelation

Autocorrelation of errors is noticed when errors are linked by a reproduction process. That is, a process in which present values depend on past values. Autocorrelation may be due to several reasons including; the absence of an important independent variable whose residual explication can widen the errors, a bad specification of the model and also due to smoothing by moving averages or the interpolation of data that creates an artificial autocorrelation of errors. Observations should be independent so as to lead to uncorrelated error terms. Present values should not be correlated with previous values in a data series. This is often a problem with time series data, where many variables tend to increase over time.

The Durbin-Watson coefficient **(d)** is a test for autocorrelation, and the value of **d** ranges from 0 to 4. Values close to 0 indicate extreme positive autocorrelation; whereas values close to 4 indicate extreme negative autocorrelation; and close to 2 indicate no serial autocorrelation. As a rule of thumb, **d** should lie between 1.5 and 2.5 to indicate independence of observations. Positive autocorrelation means standard errors of the coefficients are too small. Negative autocorrelation means standard errors are too large. Breusch-Godfrey Serial Correlation LM Test provides another method of dictating the nature of serial correlation of successive error terms. Error term is not serial correlated when the probability of Breusch-Godfrey Serial Correlation LM Test is greater than 5 percent.

Autocorrelation may also occur in time series data when the residuals do not form a random trend around the regression line. One way of eliminating autocorrelation is by identifying the factors responsible for the autocorrelation and extending the regression accordingly. The Coherence-Occult method does this with an interactive process with 5 different steps. Firstly, the original equation is regressed. Secondly, residuals are being calculated. Thirdly, $\mathbf{X}_t$ is regressed against $\mathbf{X}_{t-1}$ to estimate the correlation between the two variables. Fourth, we put the actual value of the correlation in the original equation. Step five recalculates the residuals and the process start over at step three until the autocorrelation is eliminated (Sjöberg, 2003).

b) Test for Heteroscedasticity

Heteroscedasticity is tested in order to ensure that the residuals are dispersed randomly throughout the range of the estimated dependent variable. In other words, the variance of residual errors should be constant for all values of the independent variables. If not, separate models may be required for the different ranges. Also, when the homoscedasticity assumption is violated, conventionally computed confidence intervals and conventional t-tests for OLS estimators can no

longer be justified. We test for heteroscedasticity using the ARCH test in cases where the lagged term is included in the equation and White-heteroscedasticity test with no crossing where lagged term is not included. In either test, if the probability of the calculated statistic is greater than 0.05, we accept the null hypothesis (H_o) which implies: presence of homoscedasticity.

c) Test for normality of errors

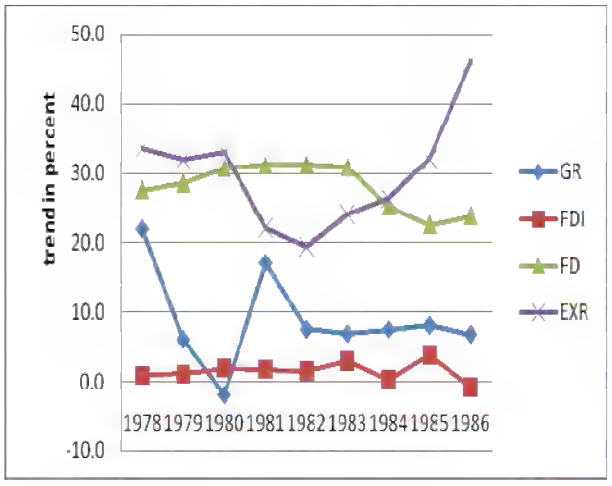
Error, represented by the residuals should be normally distributed for each set of values of the independent variables. The central limit theorem assumes that even when an error is not normally distributed and the sample size being large, the sampling distribution of the coefficient will still be normal. Therefore, the violations of this assumption usually have little or no impact on substantive conclusions for large samples, but when the sample size is small, the test of normality of errors is important. Test for normality of errors is verified in the study using the Jarque-Bera test. As a rule, the test accepts the null hypothesis of normality of errors when the calculated probabilities of the statistics are greater than 0.05 indicating that errors represented by the residuals are normally distributed for each set of values of the independent variables.

Appendix 5: Variable Description

Variable name	*Variable Description*
FDI	Foreign Direct Investment as a % of GDP
MS	Market size taken as annual % growth of GDP per capita
MES	Macroeconomic stability measured as the % change in Consumer Price Index (CPI)
RER	Real Exchange Rate is expressed as the ratio of price of tradable to price of non tradables
FISD	Government net debt as a % of GDP
QLF	Quality of labour force proxy as segment of population enrolled in secondary school
FD	Financial development (Credit to private sector as a % of GDP)
GR	Growth Rate (annual % growth of Real GDP)
FLI	Financial Liberalisation index constructed based on six dimensions (Noula, 2012)
FL	Financial Liberalisation considered as a dummy
INV	Investment rate (ratio of gross investment as a % of GDP)
TOT	Term of trade (ratio of price index of export to price index of import)
FB	Foreign Borrowing (external debt stock as % of GNI)
GOV	Government Expenditure (government final consumption expenditure as a % of GDP)
INFR	Infrastructure Development (% change in Kilowatts of electricity production)
INDR	Level of Industrialization taken as a % of GDP- Saving ratio
OP	Trade Openness (sum of import and export as a % of GDP)
EPZ	Export processing zone by 1992 as a dummy
$\mathbf{D_{dev}}$	Devaluation of FCFA in 1994 as a dummy
$\mathbf{D_{cris}}$	Economic crisis of 1987 as dummy

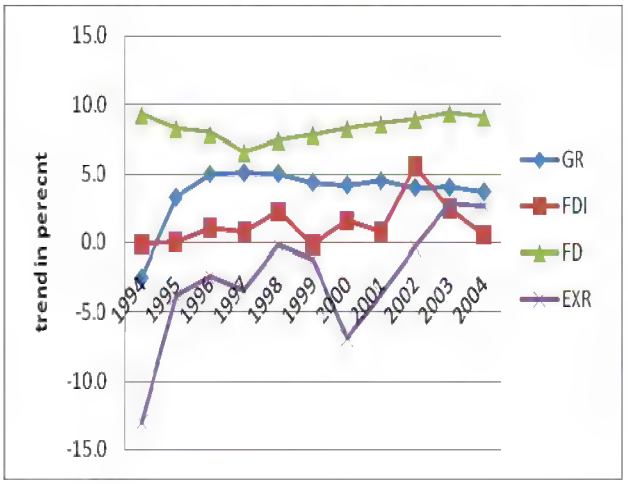
Appendix 6: Evolution of Growth rate, FDI, Financial Development and RER in Cameroon 1978-2010

1- **The period of sustainable growth (1978-1986)**



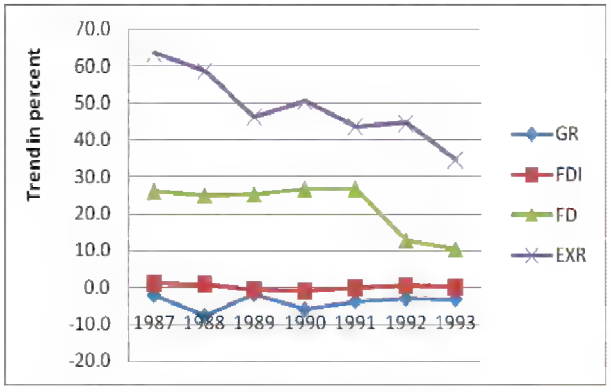
Source: constructed by the Author

3- **The period of return to growth (1994 – 2004)**



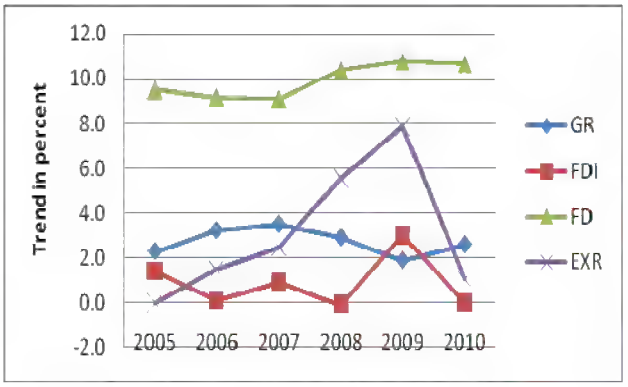
Source: constructed by the Author

3- **The period of economic crisis (1987 – 1993)**



Source: constructed by the Author

4- **The period of inherited financial crisis (2005-2010)**



Source: constructed by the Author

Appendix 7: Estimation of VECM

c) Results of Vector Error Correction Estimates of FDI, FD, RER and Economic Growth

Date: 04/01/14 Time: 15:08
Sample(adjusted): 1980 2010
Included observations: 31 after adjusting endpoints
Standard errors & t-statistics in parentheses

Cointegrating Eq:	CointEq1
D(LNRGDP(-1))	1.000000
D(FDI(-1))	-0.164366
	(0.07791)
	(-2.10958)
D(LNFD(-1))	-0.200804
	(0.16721)
	(-1.20094)
D(LNRER(-1))	0.135612
	(0.17869)
	(0.75892)

Error Correction:	D(LNRGDP,2)	D(FDI,2)	D(LNFD,2)	D(LNRER,2)
CointEq1	-0.126170	10.64930	0.287939	-0.098344
	(0.05473)	(2.34830)	(0.26235)	(0.23814)
	(-2.30538)	(4.53490)	(1.09755)	(-0.41296)
D(LNRGDP(-1),2)	-0.258923	-9.107800	0.059170	0.549830
	(0.17119)	(7.34555)	(0.82063)	(0.74492)
	(-1.51246)	(-1.23991)	(0.07210)	(0.73810)
D(LNFDI(-1),2)	-0.011407	0.081248	0.019748	-0.013512
	(0.00506)	(0.21716)	(0.02426)	(0.02202)
	(-2.25389)	(0.37414)	(0.81399)	(-0.61355)
D(LNFD(-1),2)	-0.040264	0.125621	-0.347275	0.750296
	(0.04085)	(1.75261)	(0.19580)	(0.17773)
	(-0.98576)	(0.07168)	(-1.77364)	(4.22144)
D(LNRER(-1),2)	0.016541	0.164969	-0.030075	-0.326174
	(0.03179)	(1.36394)	(0.15238)	(0.13832)
	(0.52036)	(0.12095)	(-0.19738)	(-2.35813)
R-squared	0.248651	0.808196	0.180358	0.580645
Adj. R-squared	0.133058	0.778688	0.054259	0.516129
Sum sq. resids	0.041067	75.60924	0.943665	0.777584
S.E. equation	0.039743	1.705300	0.190512	0.172937
F-statistic	2.151102	27.38876	1.430294	9.000002
Log likelihood	58.72410	-57.80676	10.13846	13.13894
Akaike AIC	-3.466071	4.052049	-0.331514	-0.525093
Schwarz SC	-3.234783	4.283337	-0.100225	-0.293805
Mean dependent	0.000140	-0.102730	-0.001413	-0.000122
S.D. dependent	0.042684	3.624916	0.195901	0.248612

Determinant Residual Covariance	1.78E-06
Log Likelihood	29.29182
Akaike Information Criteria	-0.341408
Schwarz Criteria	0.768776

d) Results of Johansen cointegration test

Date: 03/31/14 Time: 07:19
Sample: 1977 2010
Included observations: 31
Test assumption: No deterministic trend in the data
Series: D(LNRGDP) D(LNFDI) D(LNFD) D(LNRER)
Lags interval: 1 to 1

Eigenvalue	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.638233	69.97763	39.89	45.58	None **
0.439419	38.45818	24.31	29.75	At most 1 **
0.394277	20.51593	12.53	16.31	At most 2 **
0.148258	4.974619	3.84	6.51	At most 3 *

*(**) denotes rejection of the hypothesis at 5%(1%) significance level
L.R. test indicates 4 cointegrating equation(s) at 5% significance level

Unnormalized Cointegrating Coefficients:

D(LNRGDP)	D(FDI)	D(LNFD)	D(LNRER)
1.377059	-0.226341	-0.276519	0.186745
-2.901969	-0.035746	1.206529	0.161937
-0.357089	-0.008110	0.665559	-1.690309
-3.523849	-0.022650	-0.761303	0.076330

Normalized Cointegrating Coefficients: 1 Cointegrating Equation(s)

D(LNRGDP)	D(FDI)	D(LNFD)	D(LNRER)
1.000000	-0.164366	-0.200804	0.135612
	(0.07791)	(0.16721)	(0.17869)
Log likelihood	29.29182		

Normalized Cointegrating Coefficients: 2 Cointegrating Equation(s)

D(LNRGDP)	D(FDI)	D(LNFD)	D(LNRER)
1.000000	0.000000	-0.400776	-0.042458
		(0.14778)	(0.11228)
0.000000	1.000000	-1.216627	-1.083374
		(1.54183)	(1.17140)
Log likelihood	38.26294		

Normalized Cointegrating Coefficients: 3 Cointegrating Equation(s)

D(LNRGDP)	D(FDI)	D(LNFD)	D(LNRER)
1.000000	0.000000	0.000000	-1.382801
			(1.44770)
0.000000	1.000000	0.000000	-5.152227
			(6.68696)
0.000000	0.000000	1.000000	-3.344373
			(3.26247)
Log likelihood	46.03360		

Appendix 8: Estimation of Wald F-Test statistics

a) Wald F- Statistics for economic growth equation in Cameroon

Dependent Variable: D(LnRGDP)
Method: Least Squares
Date: 03/27/14 Time: 09:07
Sample(adjusted): 1980 2010
Included observations: 23
Excluded observations: 8 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.686923	1.190411	2.257139	0.0870
LnRGDP(-1)	-0.274243	0.175369	-1.563808	0.1929
LnFDI(-1)	0.050978	0.018457	2.761990	0.0507
LnRER(-1)	-0.001400	0.069589	-0.020120	0.9849
LnFD(-1)	0.045435	0.060788	0.747430	0.4963
LnSTR(-1)	0.002163	0.016527	0.130886	0.9022
LnINDR(-1)	-0.000948	0.064239	-0.014754	0.9889
LnQLF(-1)	0.040305	0.082680	0.487484	0.6514
LnOP(-1)	-0.027414	0.129164	-0.212240	0.8423
LnGOV(-2)	-0.317150	0.276901	-1.145356	0.3159
D(LnRGDP(-1))	-0.186705	0.423031	-0.441351	0.6818
D(LnFDI(-1))	-0.028014	0.011070	-2.530612	0.0646
D(LnRER(-1))	-0.036539	0.086491	-0.422464	0.6944
D(LnFD(-1))	-0.085524	0.077147	-1.108583	0.3298
D(LnSTR(-1))	0.009444	0.009885	0.955374	0.3935
D(LnQLF(-1))	0.032347	0.097553	0.331584	0.7568
D(LnINDR(-1))	-0.004616	0.069285	-0.066622	0.9501
D(LnOP(-1))	0.062650	0.095312	0.657315	0.5469
D(LnGOV(-2))	0.286971	0.194107	1.478420	0.2134

R-squared	0.971802	Mean dependent var	-0.000708
Adjusted R-squared	0.844911	S.D. dependent var	0.047306
S.E. of regression	0.018630	Akaike info criterion	-5.225162
Sum squared resid	0.001388	Schwarz criterion	-4.287145
Log likelihood	79.08937	F-statistic	7.658579
Durbin-Watson stat	3.954913	Prob(F-statistic)	0.030780

Wald Test:
Equation: Untitled

Null Hypothesis:	C(2)= 0
	C(3)= 0
	C(4)= 0
	C(5)= 0
	C(6)= 0
	C(7)= 0
	C(8)= 0
	C(9)= 0
	C(10)= 0

F-statistic	4.286125	Probability	0.087317
Chi-square	38.57512	Probability	0.000014

b) Wald F- Statistics for FDI equation in Cameroon

Dependent Variable: D(logFDI)
Method: Least Squares
Date: 04/08/14 Time: 07:42
Sample(adjusted): 1982 2008
Included observations: 18
Excluded observations: 9 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-249.0713	130.5696	-1.907575	0.3074
logFDI(-1)	4.469765	2.591452	1.724811	0.3345
MS(-1)	-1.407846	1.001497	-1.405742	0.3936
LogINFL	-0.109830	1.605720	-0.068399	0.9565
LogRER(-1)	11.43888	5.941140	1.925368	0.3050
STR	-0.357706	0.170268	-2.100845	0.2828
LogINDR	-35.15993	19.65557	-1.788802	0.3245
LogFD(-1)	17.01373	17.48443	0.973079	0.5087
LogOP(-1)	67.68275	40.93524	1.653410	0.3463
D(FDI(-1))	-2.767887	1.081614	-2.559035	0.2372
D(LogMS)	2.582379	1.971548	1.309823	0.4151
D(LogINFL)	-0.062943	0.801041	-0.078577	0.9501
D(LogRER(-1))	-21.59994	8.082764	-2.672345	0.2280
D(STR)	-0.025314	0.131715	-0.192189	0.8791
D(LogINDR)	2.758009	8.730048	0.315921	0.8052
D(LogFD(-1))	-56.75776	16.53170	-3.433268	0.1804
D(LogOP(-2))	14.08398	9.660591	1.457879	0.3827

R-squared	0.985315	Mean dependent var	-0.155556
Adjusted R-squared	0.750351	S.D. dependent var	2.385294
S.E. of regression	1.191810	Akaike info criterion	2.187340
Sum squared resid	1.420411	Schwarz criterion	3.028247
Log likelihood	-2.686063	F-statistic	4.193472
Durbin-Watson stat	2.255734	Prob(F-statistic)	0.368059

Wald Test:
Equation: Untitled

Null Hypothesis:	C(2)= 0
	C(3)= 0
	C(4)= 0
	C(5)= 0
	C(6)= 0
	C(7)= 0
	C(8)= 0
	C(9)= 0

F-statistic	3.718866	Probability	0.381895
Chi-square	29.75093	Probability	0.000234

Appendix 9: Asymptotic critical value bounds for the Wald F-statistic

a) Pesaran *et al.* (2001) critical values of bounds test for existence of a levels relationship (based on 1000 observations)

Table CI(iii) Case III: Unrestricted intercept and no trend

k	0.100		0.050		0.025		0.010		Mean		Variance	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
0	6.58	6.58	8.21	8.21	9.80	9.80	11.79	11.79	3.05	3.05	7.07	7.07
1	4.04	4.78	4.94	5.73	5.77	6.68	6.84	7.84	2.03	2.52	2.28	2.89
2	3.17	4.14	3.79	4.85	4.41	5.52	5.15	6.36	1.69	2.35	1.23	1.77
3	2.72	3.77	3.23	4.35	3.69	4.89	4.29	5.61	1.51	2.26	0.82	1.27
4	2.45	3.52	2.86	4.01	3.25	4.49	3.74	5.06	1.41	2.21	0.60	0.98
5	2.26	3.35	2.62	3.79	2.96	4.18	3.41	4.68	1.34	2.17	0.48	0.79
6	2.12	3.23	2.45	3.61	2.75	3.99	3.15	4.43	1.29	2.14	0.39	0.66
7	2.03	3.13	2.32	3.50	2.60	3.84	2.96	4.26	1.26	2.13	0.33	0.58
8	1.95	3.06	2.22	3.39	2.48	3.70	2.79	4.10	1.23	2.12	0.29	0.51
9	1.88	2.99	2.14	3.30	2.37	3.60	2.65	3.97	1.21	2.10	0.25	0.45
10	1.83	2.94	2.06	3.24	2.28	3.50	2.54	3.86	1.19	2.09	0.23	0.41

b) Narayan (2004) Reformulated Critical Values for the Bounds F- statistics Approach to Cointegration (based on 30- 80 observations)

	Critical values for the bound test extracted from Appendix A1,2&3: restricted intercept and no trend						*Critical values for the bound test extracted from Appendix A4,5&6: restricted intercept and trend*					
k=7	**1%**		**5%**		**10%**		**1%**		**5%**		**10%**	
n	**I(0)**	**I(1)**	**I(0)**	**I(1)**	**I(0)**	**I(1)**	**I(0)**	**I(1)**	**I(0)**	**I(1)**	**I(0)**	**I(I)**
30	3.864	5.694	2.730	4.163	2.277	3.498	4.104	6.151	2.875	4.445	2.384	3.738
31	3.826	5.691	2.713	4.094	2.256	3.454	4.038	6.138	2.850	4.379	2.350	3.685
32	3.762	5.460	2.670	4.047	2.238	3.443	4.028	5.904	2.825	4.344	2.345	3.678
33	3.718	5.461	2.664	4.004	2.229	3.399	3.944	5.993	2.799	4.296	2.330	3.641
34	3.641	5.446	2.658	3.973	2.216	3.392	3.875	5.846	2.798	4.258	2.316	3.621
35	3.599	5.230	2.597	3.907	2.196	3.370	3.841	5.686	2.753	4.209	2.300	3.606
36	3.536	5.238	2.619	3.921	2.206	3.360	3.789	5.669	2.750	4.211	2.306	3.588
37	3.513	5.190	2.501	3.887	2.187	3.336	3.746	5.636	2.723	4.175	2.283	3.573
38	3.546	5.084	2.583	3.849	2.172	3.321	3.763	5.504	2.721	4.145	2.283	3.564
39	3.568	5.057	2.558	3.848	2.169	3.306	3.696	5.489	2.704	4.128	2.276	3.551
40	3.402	5.013	2.523	3.829	2.152	3.296	3.044	5.464	2.676	4.130	2.260	3.534
45	3.383	4.832	2.504	3.723	2.131	3.223	3.595	5.225	2.643	4.004	2.238	3.461
50	3.282	4.730	2.457	3.650	2.099	3.181	3.498	5.149	2.593	3.941	2.205	3.421
55	3.194	4.562	2.424	3.608	2.069	3.148	3.424	4.989	2.556	3.904	2.181	3.398
60	3.129	4.507	2.373	3.540	2.044	3.104	3.346	4.895	2.513	3.823	2.155	3.353
65	3.092	4.478	2.373	3.519	2.043	3.094	3.310	4.871	2.525	3.808	2.156	3.334
70	3.034	4.426	2.351	3.498	2.024	3.079	3.261	4.821	2.494	3.786	2.138	3.325
75	3.057	4.413	2.360	3.478	2.023	3.068	2.266	4.801	2.503	3.768	2.134	3.313
80	3.021	4.350	2.336	3.458	2.017	3.052	3.233	4.760	2.476	3.746	2.129	3.289